

Honolulu High Capacity Transit Corridor Project

Travel Forecasting Results and Uncertainties Report

October 1, 2009

Prepared for:
City and County of Honolulu

Table of Contents

SUMMARY..... ES-1

CHAPTER 1 BACKGROUND..... 1-1

1.1 Introduction..... 1-1

1.2 Description of the Corridor..... 1-1

1.3 Description of Alternatives..... 1-1

1.3.1 Base Year (Existing) Alternative 1-2

1.3.2 No Build Alternative 1-2

1.3.3 Transportation System Management (TSM) Alternative 1-2

1.3.4 Airport—First Project Build Alternative..... 1-2

1.3.5 Features in the Build Alternative 1-2

CHAPTER 2 BASIC TRAVEL FORECASTING RESULTS 2-1

2.1 Current Conditions 2-1

2.1.1 Comparison of Estimated 2005 Transit Trips vs. 2005 On-Board Survey..... 2-1

2.1.2 Mode Choice Aggregate Summary..... 2-3

2.2 No Build vs. Current Conditions Forecasts..... 2-5

2.2.1 Comparison of Socioeconomic Data between 2005 and 2030 2-5

2.2.2 Total Person and Transit Trips Comparisons with 2005 2-6

2.2.3 Mode Choice Aggregate Summary..... 2-15

2.2.4 Comparison of 2005 and 2030 No Build District Level Transit Mode Shares 2-17

2.3 TSM vs. No Build Forecasts 2-21

2.3.1 Total Transit Trips Comparisons with No Build 2-21

2.3.2 Mode Choice Aggregate Summary..... 2-24

2.3.3 Comparison of 2030 No Build and 2030 TSM District Level Transit Mode Shares 2-26

2.3.4 User Benefit Analysis TSM Alternative vs. No Build Alternative 2-29

2.4 Fixed Guideway Airport—First Project vs. TSM Forecasts..... 2-59

2.4.1 Mode Choice Aggregate Summary..... 2-62

2.4.2 Comparison of 2030 TSM and 2030 First Project Airport District Level Transit Mode Shares 2-64

2.4.3 User Benefits Analysis—First Project Airport Alternative vs. TSM Alternative..... 2-67

2.4.4 Fixed Guideway Link Volumes..... 2-97

2.4.5 Station-to-Station Volumes 2-98

2.5 Summary Comparison Tables of the Alternatives 2-100

CHAPTER 3 UNCERTAINTIES 3-1

3.1 Stepwise Build-up of Rail Forecasts..... 3-1

3.2 Uncertainties of the Assumptions in the Model..... 3-1

3.2.1 Large Highway Investment 3-2

3.2.2 Demographics—Second City..... 3-2

3.2.3 Massive Bus System Restructuring.....3-2

3.2.4 Rail Headways3-6

3.3 Model Inexperience Items3-6

3.3.1 Absence of Current Formal Park-and-Rider Users3-6

3.3.2 Bus Access to Rail Trips.....3-7

3.3.3 Multi-Transfer Trips3-8

3.3.4 Rail/Guideway Effects3-14

3.3.5 Special Markets (Circulation Trips).....3-14

3.4 Summary of Uncertainty Specifications3-14

3.5 Best-Guess Forecast3-15

REFERENCES

APPENDIX A—FINAL EIS LAND USE COMPARISON

APPENDIX B—ALTERNATIVE DEMOGRAPHICS/LAND USE DATA

List of Tables

Table 2-1. 2005 Observed vs. Estimated Transit Trips between Key Markets	2-3	Table 2-25. 2030 No Build Estimated vs. 2030 TSM Boardings by Route Type	2-24
Table 2-2. 2005 Observed vs. Estimated Transit Trips by Mode	2-3	Table 2-26. 2030 TSM Alternative Mode Choice Summary Results by Trip Purpose	2-25
Table 2-3. 2005 Observed vs. Estimated Boardings by Route Type	2-3	Table 2-27. 2030 TSM Alternative District-to-District Transit Mode Share	2-27
Table 2-4. 2005 Mode Choice Summary Results by Trip Purpose	2-4	Table 2-28. Difference in District-to-District Transit Mode Share—2030 TSM Alternative vs. 2030 No Build Alternative	2-28
Table 2-5. Comparison of 2005 vs. 2030 Population and Households	2-5	Table 2-29. User Benefits Information Comparing 2030 TSM Alternative vs. 2030 No Build Alternative	2-30
Table 2-6. Comparison of 2005 vs. 2030 Employment	2-6	Table 2-30. District-to-District User Benefits for All Trip Purposes (in minutes)— 2030 TSM Alternative vs. 2030 No Build Alternative	2-45
Table 2-7. Total Daily Person Trips by Mode—2005 and 2030 No Build Alternative	2-6	Table 2-31. District-to-District User Benefits for Journey-to-Work/Home-Based- Work (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-46
Table 2-8. Daily Total Person Trips (Production to Attraction Format)—2005 Base Year	2-8	Table 2-32. District-to-District User Benefits for Journey-to-Work/Home-Based- Other (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-47
Table 2-9. Daily Total Person Trips (Production to Attraction Format)—2030 No Build Alternative	2-9	Table 2-33. District-to-District User Benefits for Journey-to-Work/Work-Based (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-48
Table 2-10. Percent Growth in Daily Total Person Trips (Production to Attraction Format)—2005 Base Year to 2030 No Build Alternative	2-10	Table 2-34. District-to-District User Benefits for Journey-to-Work/Non-Work-Based (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-49
Table 2-11. Daily Total Transit Person Trips (Production to Attraction Format)— 2005 Base Year	2-11	Table 2-35. District-to-District User Benefits for Journey-at-Work/Work-Based (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-50
Table 2-12. Daily Total Transit Person Trips (Production to Attraction Format)— 2030 No Build Alternative	2-12	Table 2-36. District-to-District User Benefits for Journey-at-Work/Non-Work-Based (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-51
Table 2-13. Percent Growth in Daily Total Transit Person Trips (Production to Attraction Format)—2005 Base Year to 2030 No Build Alternative	2-13	Table 2-37. District-to-District User Benefits for Non-Work-Related/Home-Based- College (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-52
Table 2-14. 2005 Base Year vs. 2030 No Build Alternative Transit Trips in Key Markets	2-15	Table 2-38. District-to-District User Benefits for Non-Work-Related/Home-Based- School (K-12) (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-53
Table 2-15. 2005 Estimated vs. 2030 No Build Estimated Transit Trips by Mode	2-15	Table 2-39. District-to-District User Benefits for Non-Work-Related/Home-Based- Shopping (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-54
Table 2-16. 2005 Estimated vs. 2030 No Build Estimated Boardings by Route Type	2-15	Table 2-40. District-to-District User Benefits for Non-Work-Related/Home-Based- Other (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-55
Table 2-17. 2030 No Build Alternative Mode Choice Summary Results by Trip Purpose	2-16	Table 2-41. District-to-District User Benefits for Non-Work-Related/Non-Home- Based (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-56
Table 2-18. 2005 Base Year Estimated District-to-District Transit Mode Share	2-18		
Table 2-19. 2030 No Build Alternative District-to-District Transit Mode Share	2-19		
Table 2-20. Difference in District-to-District Transit Mode Share—2030 No Build Alternative vs. 2005 Base Year	2-20		
Table 2-21. Daily Total Transit Person Trips (Production to Attraction Format)— 2030 TSM Alternative	2-22		
Table 2-22. Percent Growth in Daily Total Transit Person Trips (Production to Attraction Format)—2030 No Build Alternative to 2030 TSM Alternative	2-23		
Table 2-23. 2030 No Build vs. 2030 TSM Transit Trips between Key Markets	2-24		
Table 2-24. 2030 No Build Estimated vs. 2030 TSM Estimated Transit Trips by Mode	2-24		

Table 2-42. District-to-District User Benefits for Visitors (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-57	Table 2-60. District-to-District User Benefits for Non-Work-Related/Home-Based-School (K-12) (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-90
Table 2-43. District-to-District User Benefits for Ground Access Air Passengers (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative	2-58	Table 2-61. District-to-District User Benefits for Non-Work-Related/Home-Based-Shopping (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-91
Table 2-44. Daily Total Transit Person Trips (Production to Attraction Format)—2030 First Project Airport Alternative	2-60	Table 2-62. District-to-District User Benefits for Non-Work-Related/Home-Based-Other (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-92
Table 2-45. Percent Growth in Daily Total Transit Person Trips (Production to Attraction Format)—2030 TSM Alternative to 2030 First Project Airport Alternative	2-61	Table 2-63. District-to-District User Benefits for Non-Work-Related/Non-Home-Based (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-93
Table 2-46. 2030 TSM vs. 2030 First Project Transit Trips between Key Markets	2-62	Table 2-64. District-to-District User Benefits for Visitors (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-94
Table 2-47. 2030 TSM Estimated vs. 2030 First Project Airport Estimated Transit Trips by Mode	2-62	Table 2-65. District-to-District User Benefits for Ground Access Air Passengers (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-95
Table 2-48. 2030 TSM Estimated vs. 2030 First Project Airport Boardings by Route Type	2-62	Table 2-66. Daily First Project Airport Alternative Station Volumes by Mode of Arrival and Departure (Production to Attraction Format)	2-96
Table 2-49. 2030 First Project Airport Alternative Mode Choice Summary Results by Trip Purpose	2-63	Table 2-67. Daily First Project Airport Alternative Station Volumes by Mode of Arrival and Departure (Origin to Destination Format)	2-97
Table 2-50. 2030 First Project Alternative District-to-District Transit Mode Share	2-65	Table 2-68. First Project Airport Alternative Link Volumes	2-98
Table 2-51. Difference in District-to-District Transit Mode Share—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-66	Table 2-69. First Project Airport Alternative Daily Station to Station Volumes	2-99
Table 2-52. User Benefits Information Comparing 2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-68	Table 2-70. Summary of Daily Person Trips by Mode and Alternative	2-100
Table 2-53. District-to-District User Benefits for All Trip Purposes (in minutes)—2030 First Project Alternative vs. 2030 TSM Alternative	2-83	Table 2-71. Summary of Transit Trips by Trip Purpose and Alternative	2-101
Table 2-54. District-to-District User Benefits for Journey-to-Work/Home-Based-Work (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-84	Table 2-72. Summary of Transit Boardings by Type and Alternative	2-101
Table 2-55. District-to-District User Benefits for Journey-to-Work/Home-Based-Other (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-85	Table 3-1. Stepwise Rail-Trip Build Up	3-1
Table 2-56. District-to-District User Benefits for Journey-to-Work/Work-Based (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-86	Table 3-2. Transit Summary Statistics for Differing Highway Plans	3-2
Table 2-57. District-to-District User Benefits for Journey-to-Work/Non-Work-Based (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-87	Table 3-3. Transit Summary Statistics for Differing Demographic/Land Use Plans	3-2
Table 2-58. District-to-District User Benefits for Non-Home-Based Direct Demand (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-88	Table 3-4. Number of Boardings by Routes for Journey-to-Work/Home-Based-Work Transit Trips for 2030 TSM that Would Be Forced to Transfer to Rail and Have a Longer Transit Time in Airport Alternative	3-4
Table 2-59. District-to-District User Benefits for Non-Work-Related/Home-Based-College (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative	2-89	Table 3-5. Summary Transit Statistics for Differing Bus Service Plans	3-4
		Table 3-6. District-to-District Journey-to-Work/Home-Based-Work Transit Trips for 2030 TSM that Would Be Forced to Transfer to Rail and Have a Longer Transit Time in the Airport Alternative	3-5
		Table 3-7. Transit Summary Statistics for Differing Headways on Rail	3-6
		Table 3-8. Current (2005) Formal Park-and-Ride Lot Statistics	3-6
		Table 3-9. Mode of Access Shares to Rail with Varying Drive Access Constants	3-6

Table 3-10. Daily Mode of Access for 2030 First Project Alternative Two-Plus Car Household Fixed Guideway Trips 3-7

Table 3-11. District-to-District Journey-to-Work/Home-Based-Work Walk to Fixed Guideway Transit Trips..... 3-10

Table 3-12. District-to-District Journey-to-Work/Home-Based-Work Walk to Fixed Guideway Transit Trips and Transferred Two or More Times..... 3-11

Table 3-13. District-to-District Journey-to-Work/Home-Based-Work Walk to Fixed Guideway Transit Trips, Transferred Two or More Times, and Had a Walk to Express Bus Path Available..... 3-12

Table 3-14. District-to-District Journey-to-Work/Home-Based-Work Walk to Fixed Guideway Transit Trips, Transferred Two or More Times, and Express Bus Path is Better than Rail Path..... 3-13

Table 3-15. Summary Transit Statistics for Varying Unmeasured Guideway Effects 3-14

Table 3-16. Specifications for the Lower-bound, Best-estimate, and Upper-bound Forecasts..... 3-14

List of Figures

Figure 1-1. Project Vicinity	1-1	Figure 2-16. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Other From Zones—TSM Alternative vs. No Build Alternative	2-33
Figure 1-2. Project Corridor	1-1	Figure 2-17. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Other To Zones—TSM Alternative vs. No Build Alternative	2-33
Figure 1-3. Fixed Guideway Transit Alternative Features (Kapolei to Fort Weaver Road)	1-3	Figure 2-18. Visine Map of User Benefits (in minutes) for Journey-to-Work/Work-Related From Zones—TSM Alternative vs. No Build Alternative	2-34
Figure 1-4. Fixed Guideway Transit Alternative Features (Fort Weaver Road to Aloha Stadium)	1-4	Figure 2-19. Visine Map of User Benefits (in minutes) for Journey-to-Work/Work-Related To Zones—TSM Alternative vs. No Build Alternative	2-34
Figure 1-5. Fixed Guideway Transit Alternative Features (Aloha Stadium to Kalihi)	1-5	Figure 2-20. Visine Map of User Benefits (in minutes) for Journey-to-Work/Non-Work-Related From Zones—TSM Alternative vs. No Build Alternative	2-35
Figure 1-6. Fixed Guideway Transit Alternative Features (Kalihi to UH Mānoa)	1-6	Figure 2-21. Visine Map of User Benefits (in minutes) for Journey-to-Work/Non-Work-Related To Zones—TSM Alternative vs. No Build Alternative	2-35
Figure 2-1. Transit District Areas Map	2-1	Figure 2-22. Visine Map of User Benefits (in minutes) for Journey-at-Work/Work-Related From Zones—TSM Alternative vs. No Build Alternative	2-36
Figure 2-2. 2005 Observed and Estimated Transit Trips by District-to-District Pair	2-1	Figure 2-23. Visine Map of User Benefits (in minutes) for Journey-at-Work/Work-Related To Zones—TSM Alternative vs. No Build Alternative	2-36
Figure 2-3. 2005 Observed vs. Estimated Transit Trips from Production District	2-2	Figure 2-24. Visine Map of User Benefits (in minutes) for Journey-at-Work/Non-Work-Related From Zones—TSM Alternative vs. No Build Alternative	2-37
Figure 2-4. 2005 Observed vs. Estimated Transit Trips to Attraction District	2-2	Figure 2-25. Visine Map of User Benefits (in minutes) for Journey-at-Work/Non-Work-Related To Zones—TSM Alternative vs. No Build Alternative	2-37
Figure 2-5. Comparison of 2005 vs. 2030 No Build Transit Trips Produced from Districts	2-14	Figure 2-26. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-College From Zones—TSM Alternative vs. No Build Alternative	2-38
Figure 2-6. Comparison of 2005 vs. 2030 No Build Transit Trips Attracted to Districts	2-14	Figure 2-27. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-College To Zones—TSM Alternative vs. No Build Alternative	2-38
Figure 2-7. Difference in Transit Mode Shares between 2030 No Build Alternative and 2005 Base Year	2-17	Figure 2-28. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-School (K-12) From Zones—TSM Alternative vs. No Build Alternative	2-39
Figure 2-8. Difference in Number of Transit Trips from 2030 TSM to 2030 First Project Alternative “from” Production Districts and “to” Attraction Districts	2-21	Figure 2-29. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-School (K-12) To Zones—TSM Alternative vs. No Build Alternative	2-39
Figure 2-9. Difference in Transit Trips Percentage Growth from 2030 TSM to 2030 First Project Alternative “from” Production Districts and “to” Attraction Districts	2-21	Figure 2-30. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Shopping From Zones—TSM Alternative vs. No Build Alternative	2-40
Figure 2-10. Difference in Transit Mode Shares between 2030 TSM Alternative and 2030 No Build Alternative	2-26	Figure 2-31. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Shopping To Zones—TSM Alternative vs. No Build Alternative	2-40
Figure 2-11. Visine Map of User Benefits (in minutes) for All Trip Purposes From and To Zones—TSM Alternative vs. No Build Alternative	2-29		
Figure 2-12. Visine Map of User Benefits (in minutes) for All Trip Purposes From Zones (Production)—TSM Alternative vs. No Build Alternative	2-31		
Figure 2-13. Visine Map of User Benefits (in minutes) for All Trip Purposes To Zones (Attraction)—TSM Alternative vs. No Build Alternative	2-31		
Figure 2-14. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Work From Zones—TSM Alternative vs. No Build Alternative	2-32		
Figure 2-15. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Work To Zones—TSM Alternative vs. No Build Alternative	2-32		

Figure 2-32. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Other From Zones—TSM Alternative vs. No Build Alternative	2-41
Figure 2-33. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Other To Zones—TSM Alternative vs. No Build Alternative	2-41
Figure 2-34. Visine Map of User Benefits (in minutes) for Non-Work-Related/Non-Home-Based From Zones—TSM Alternative vs. No Build Alternative	2-42
Figure 2-35. Visine Map of User Benefits (in minutes) for Non-Work-Related/Non-Home-Based To Zones—TSM Alternative vs. No Build Alternative	2-42
Figure 2-36. Visine Map of User Benefits (in minutes) for Visitors From Zones—TSM Alternative vs. No Build Alternative	2-43
Figure 2-37. Visine Map of User Benefits (in minutes) for Visitors To Zones—TSM Alternative vs. No Build Alternative	2-43
Figure 2-38. Visine Map of User Benefits (in minutes) for Ground Access Air Passenger From Zones—TSM Alternative vs. No Build Alternative	2-44
Figure 2-39. Visine Map of User Benefits (in minutes) for Ground Access Air Passenger To Zones—TSM Alternative vs. No Build Alternative	2-44
Figure 2-40. Difference in Number of Transit Trips from 2030 TSM to 2030 First Project Alternative “From” Production Districts and “To” Attraction Districts	2-59
Figure 2-41. Difference in Transit Trips Percentage Growth from 2030 TSM to 2030 First Project Alternative “From” Production Districts and “To” Attraction Districts	2-59
Figure 2-42. Difference in Transit Mode Shares between 2030 First Project Airport Alternative and 2030 TSM Alternative	2-64
Figure 2-43. Visine Map of User Benefits (in minutes) for All Trip Purposes From and To Zones—First Project Airport Alternative vs. TSM Alternative	2-69
Figure 2-44. Visine Map of User Benefits (in minutes) for All Trip Purposes From Zones (Production)—First Project Airport Alternative vs. TSM Alternative	2-69
Figure 2-45. Visine Map of User Benefits (in minutes) for All Trip Purposes To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative	2-70
Figure 2-46. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Work From Zones (Production)—First Project Airport Alternative vs. TSM Alternative	2-70
Figure 2-47. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Work To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative	2-71

Figure 2-48. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Other From Zones (Production)—First Project Airport Alternative vs. TSM Alternative	2-71
Figure 2-49. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Other To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative	2-72
Figure 2-50. Visine Map of User Benefits (in minutes) for Journey-to-Work/Work-Related From Zones (Production)—First Project Airport Alternative vs. TSM Alternative	2-72
Figure 2-51. Visine Map of User Benefits (in minutes) for Journey-to-Work/Work-Related To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative	2-73
Figure 2-52. Visine Map of User Benefits (in minutes) for Journey-to-Work/Non-Work-Related From Zones (Production)—First Project Airport Alternative vs. TSM Alternative	2-73
Figure 2-53. Visine Map of User Benefits (in minutes) for Journey-to-Work/Non-Work-Related To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative	2-74
Figure 2-54. Visine Map of User Benefits (in minutes) for Non-Home-Based Direct Demand From Zones (Production)—First Project Airport Alternative vs. TSM Alternative	2-74
Figure 2-55. Visine Map of User Benefits (in minutes) for Non-Home-Based Direct Demand To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative	2-75
Figure 2-56. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-College From Zones (Production)—First Project Airport Alternative vs. TSM Alternative	2-75
Figure 2-57. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-College To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative	2-76
Figure 2-58. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-School (K-12) From Zones (Production)—First Project Airport Alternative vs. TSM Alternative	2-76
Figure 2-59. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-School (K-12) To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative	2-77
Figure 2-60. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Shopping From Zones (Production)—First Project Airport Alternative vs. TSM Alternative	2-77
Figure 2-61. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Shopping To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative	2-78

Figure 2-62. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Other From Zones (Production)—First Project Airport Alternative vs. TSM Alternative	2-78
Figure 2-63. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Other To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative	2-79
Figure 2-64. Visine Map of User Benefits (in minutes) for Non-Work-Related/Non-Home-Based From Zones (Production)—First Project Airport Alternative vs. TSM Alternative.....	2-79
Figure 2-65. Visine Map of User Benefits (in minutes) for Non-Work-Related/Non-Home-Based To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative.....	2-80
Figure 2-66. Visine Map of User Benefits (in minutes) for Visitors From Zones (Production)—First Project Airport Alternative vs. TSM Alternative	2-80
Figure 2-67. Visine Map of User Benefits (in minutes) for Visitors To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative	2-81
Figure 2-68. Visine Map of User Benefits (in minutes) for Ground Access Air – Passenger From Zones (Production)—First Project Airport Alternative vs. TSM Alternative.....	2-81
Figure 2-69. Visine Map of User Benefits (in minutes) for Ground Access Air Passenger To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative	2-82
Figure 2-70. First Project Airport Alternative A.M. Peak Hour Link Volumes.....	2-98
Figure 3-1. Honolulu High-Capacity Transit Corridor Project Vicinity	3-3
Figure 3-2. Number of Bus-to-Rail Trip Productions from Two-Plus Car Households	3-8
Figure 3-3. Frequency of Journey-to-Work/Home-Based-Work Walk to Fixed Guideway Transit Trips with Second Option Available and Forced to Transfer Two-plus Times	3-8
Figure 3-4. Frequency of Journey-to-Work/Home-Based-Work Walk to Fixed Guideway Transit Trips Where Second Option Had Better Weighted Time and Forced to Transfer Two-plus Times	3-9

Summary

This report presents the technical raw model results of the travel forecasting analysis conducted for the Honolulu High-Capacity Transit Corridor Project (HHCTCP). The travel forecasting was conducted using the O'ahu Metropolitan Planning Organization's (O'ahuMPO) base model for the Island of O'ahu. The model was reviewed, enhanced, and recalibrated for this Project (*Honolulu High-Capacity Transit Corridor Project Model Development, Calibration, and Validation Report* [RTD 2009b]). A fixed distribution of person trips and highway travel time matrices were used for all future year (2030) alternatives in this analysis, with the projected transit mode share being the resulting distinctive output from the model.

Four primary alternatives were analyzed for this report. A current year alternative (2005); the No Build Alternative, which included programming highway and transit improvements through the year 2030; the Transportation System Management (TSM) Alternative, which included a restructuring of the bus network, additional bus service, and relatively low-cost improvements to transit service; and the Fixed Guideway Alternative, which included the 20-mile Airport Alternative ("First Project").

The results of the analysis illustrate that the greatest improvements to the transit system for the future result from the Fixed Guideway Alternative. In regards to serving existing and future transit markets, the Fixed Guideway Alternative does the best job in accommodating both longer corridor transit trips and the increase in work commute trips to West O'ahu, which is expected to become much more pronounced in the future.

1.1 Introduction

The City and County of Honolulu Department of Transportation Services (DTS) Rapid Transit Division (RTD), in cooperation with the U.S. Department of Transportation Federal Transit Administration (FTA), is evaluating fixed-guideway alternatives that would provide high-capacity transit service on O’ahu. The project study area is the travel corridor between Kapolei and the University of Hawai’i at Mānoa (UH Mānoa) (Figure 1-1). This corridor includes the majority of housing and employment on O’ahu. The east-west length of the corridor is approximately 23 miles. The north-south width is, at most, 4 miles because the Ko’olau and Wai’anae Mountain Ranges bound much of the corridor to the north and the Pacific Ocean to the south.

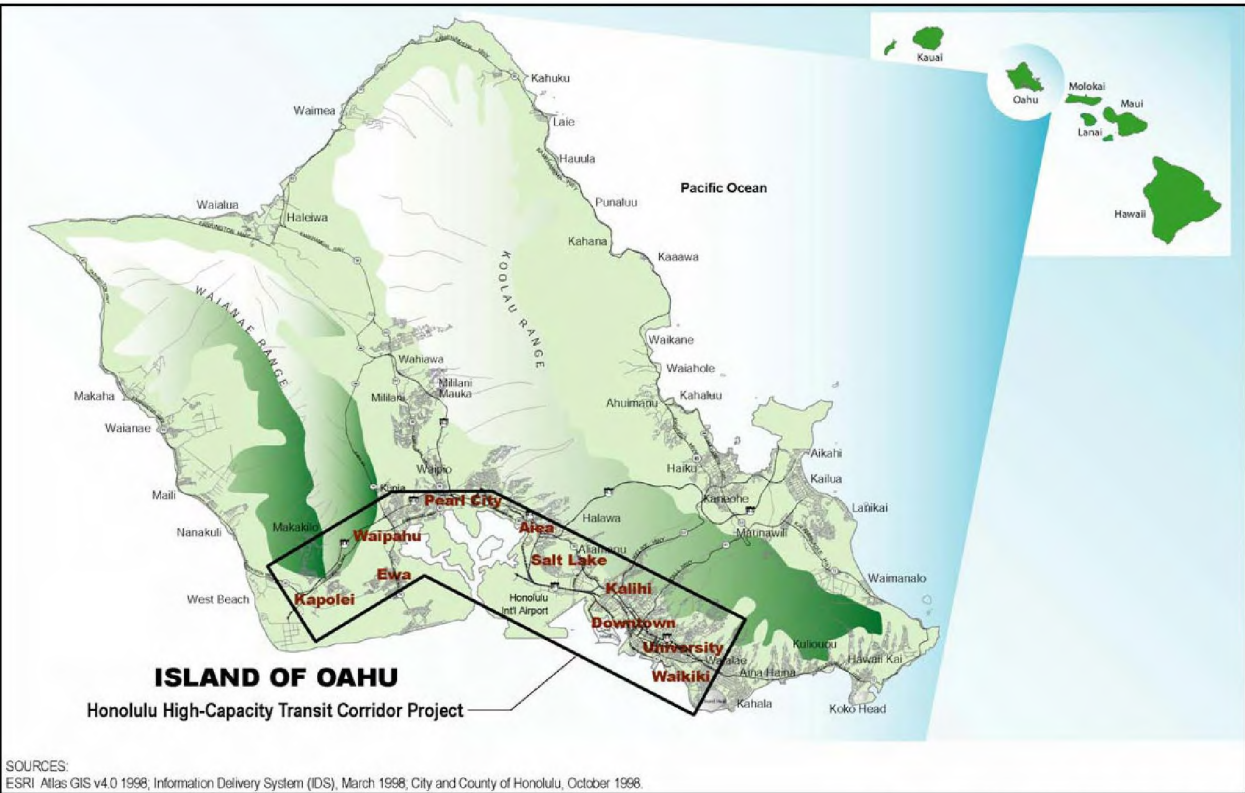


Figure 1-1. Project Vicinity

1.2 Description of the Corridor

The Honolulu High-Capacity Transit Corridor extends from Kapolei in the west (Wai’anae or ‘Ewa direction) to UH Mānoa in the east (Koko Head direction) and is confined by the Wai’anae and Ko’olau Mountain Ranges in the mauka direction (towards the mountains, generally to the north within the study corridor) and the Pacific Ocean in the makai direction (towards the sea, generally to the south within the study corridor). Between Pearl City and ‘Aiea, the corridor’s width is less than 1 mile between Pearl Harbor and the base of the Ko’olau Mountain Range (Figure 1-2).

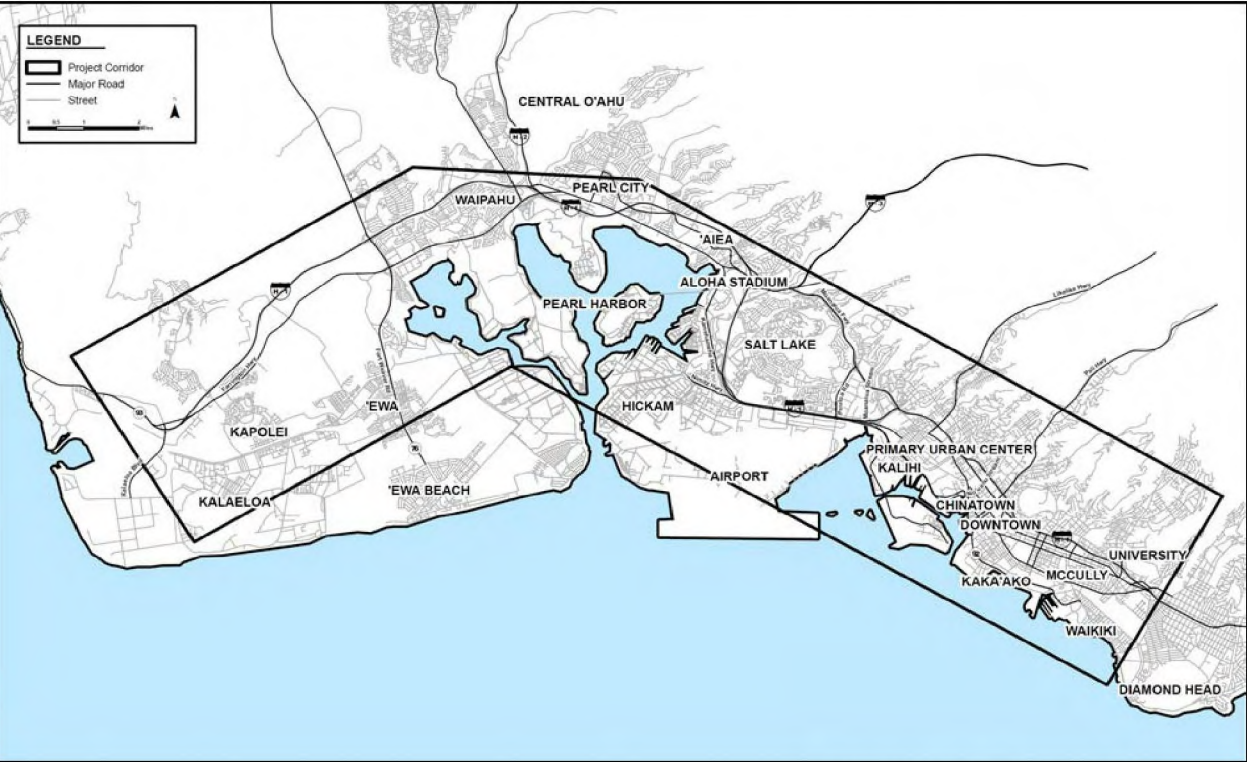


Figure 1-2. Project Corridor

1.3 Description of Alternatives

Four alternatives are presented in this document. They are listed as follows:

- 1. Base Year Alternative
- 2. No Build Alternative
- 3. Transportation System Management (TSM) Alternative
- 4. Airport Alternative

1.3.1 Base Year (Existing) Alternative

The base year (existing) alternative shown in this document is for the year 2005. This was the year the model was calibrated to and also the year that the most recent transit on-board survey was done.

1.3.2 No Build Alternative

The No Build Alternative includes existing transit and highway facilities and committed transportation projects anticipated to be operational by 2030. Committed transportation projects are those identified in the ORTP (O'ahuMPO 2007), as amended. Highway elements of the No Build Alternative also are included in the Build Alternatives. The No Build Alternative would include an increase in bus fleet size to accommodate growth, allowing service frequencies to remain the same as today.

1.3.3 Transportation System Management (TSM) Alternative

The TSM Alternative was developed to evaluate how well a combination of relatively low-cost transit improvements could meet the study area's transportation needs. FTA requires that the TSM Alternative reflect the best that can be done for mobility without constructing a new transit guideway. Bus service was optimized, per FTA guidelines, by increasing bus service but without building a new fixed guideway for transit, such as a system of dedicated bus lanes. The TSM Alternative was designed to serve the study corridor based on a hub-and-spoke network of bus routes, similar to today. Bus frequencies would have been increased during peak periods to provide improved service for work-related trips, particularly from developing areas, such as Royal Kunia, Koa Ridge, and Waiawa. The bus fleet was assumed to increase from 525 to 765 buses, and park-and-ride lots were assumed at West Kapolei, UH West O'ahu, Waipi'o, and Aloha Stadium. In addition, the present a.m. peak-hour-only zipper lane would have been modified to operate in both the a.m. and p.m. peak periods, and relatively low-cost improvements would have been made on selected roadways to give priority to buses.

1.3.4 Airport—First Project Build Alternative

The fixed guideway alternative will include the construction and operation of a grade-separated fixed guideway transit system between East Kapolei and Ala Moana Center (Figure 1-3 to Figure 1-6). The system could use any of a range of fixed-guideway transit technologies that meet performance requirements and could be either automated or employ drivers. All parts of the system will either be elevated or in exclusive right-of-way.

The Project will begin by following North-South Road and other future roadways to Farrington Highway. Proposed station locations and other project features in this area are shown in Figure 1-3. The guideway will follow Farrington Highway Koko Head on an elevated structure and continue along Kamehameha Highway to the vicinity of Aloha Stadium (Figure 1-4).

Between Aloha Stadium and Kalihi, the alignment will continue along Kamehameha Highway makai past Aloha Stadium to Nimitz Highway and turn makai onto Aolele

Street and then follow Aolele Street Koko Head to reconnect to Nimitz Highway near Moanalua Stream and continuing to the Middle Street Transit Center (Figure 1-5). Stations will be constructed at Aloha Stadium, Pearl Harbor Naval Base, Honolulu International Airport, and Lagoon Drive.

Koko Head of Middle Street, the guideway will follow Dillingham Boulevard to the vicinity of Ka'aahi Street and then turn Koko Head to connect to Nimitz Highway in the vicinity of Iwilei Road.

The alignment will follow Nimitz Highway Koko Head to Halekauwila Street, then along Halekauwila Street past Ward Avenue, where it will transition to Queen Street and Kona Street. Property on the mauka side of Waimanu Street will be acquired to allow the alignment to cross over to Kona Street. The guideway will run above Kona Street through Ala Moana Center (Figure 1-6).

The total guideway length for this alternative will be approximately 20 miles and it will include 21 stations. The eventual guideway length, including planned extensions, for this alternative would be approximately 34 miles and it would include 34 stations.

1.3.5 Features in the Build Alternative

In addition to the guideway, the Project will require the construction of stations and supporting facilities. Supporting facilities include a maintenance and storage facility, transit centers, park-and-ride lots, and traction power substations (TPSS). The maintenance and storage facility would either be located between North-South Road and Fort Weaver Road or near Leeward Community College (Figure 1-3 and Figure 1-4). Some bus service will be reconfigured to transport riders on local buses to nearby fixed guideway transit stations. To support this system, the bus fleet will be expanded.

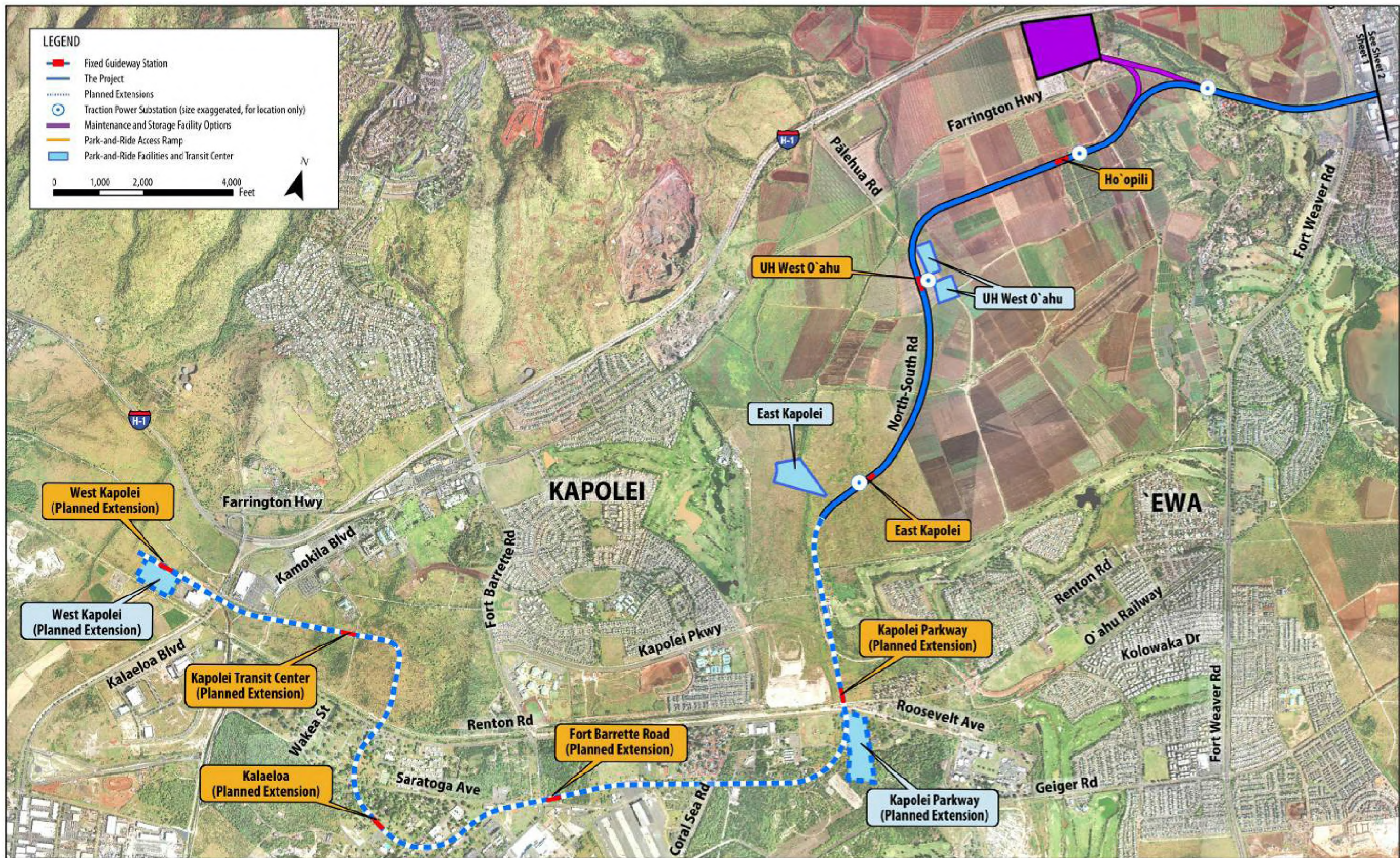


Figure 1-3. Fixed Guideway Transit Alternative Features (Kapolei to Fort Weaver Road)



Figure 1-4. Fixed Guideway Transit Alternative Features (Fort Weaver Road to Aloha Stadium)

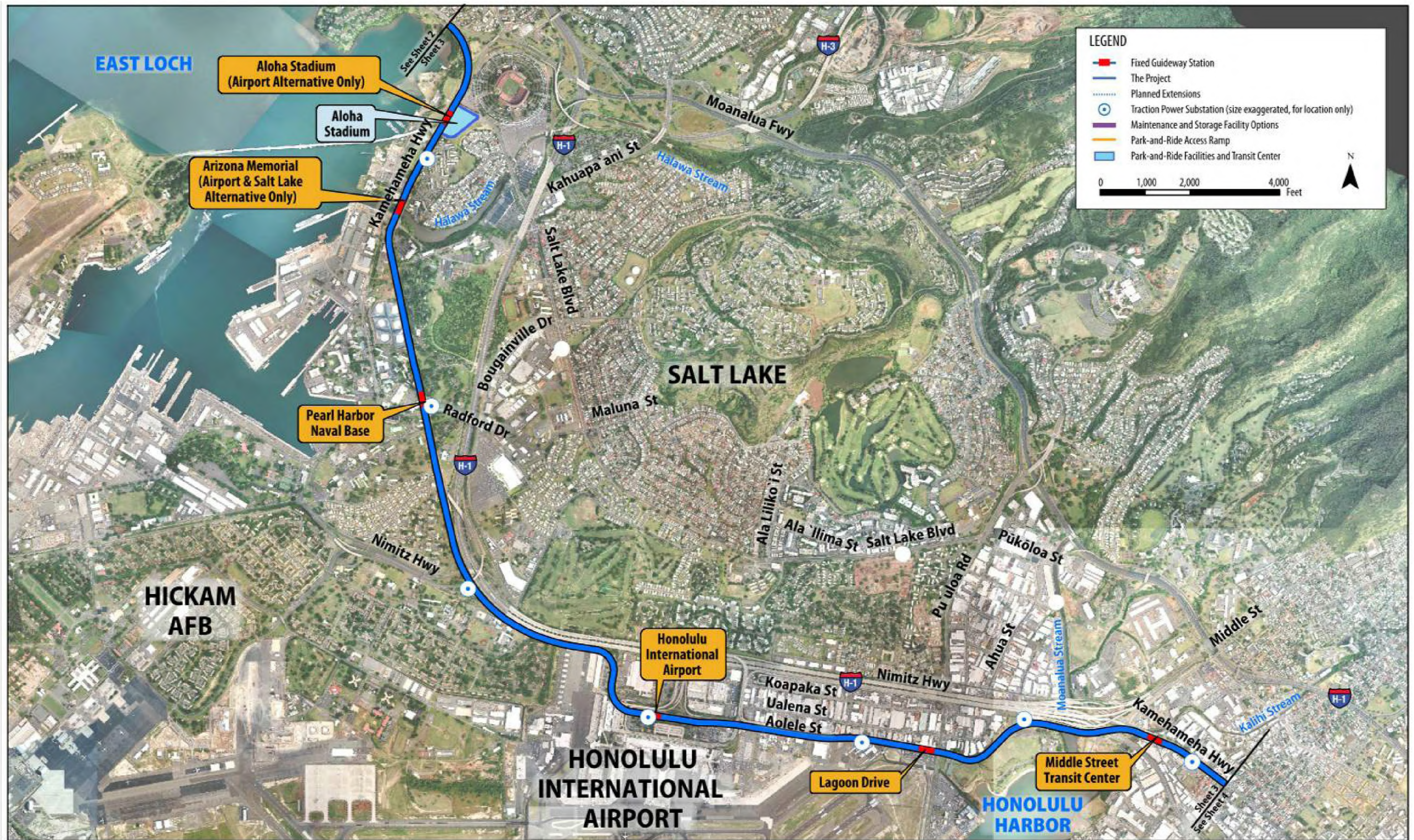


Figure 1-5. Fixed Guideway Transit Alternative Features (Aloha Stadium to Kalihi)



Figure 1-6. Fixed Guideway Transit Alternative Features (Kalihi to UH Mānoa)

This section describes the basic travel forecasting results associated with the base year and each of the alternatives. To assist in the analysis of the effects, the results are summarized at both the system-wide level and for the 26 Transportation Analysis Areas, as shown in Figure 2-1.

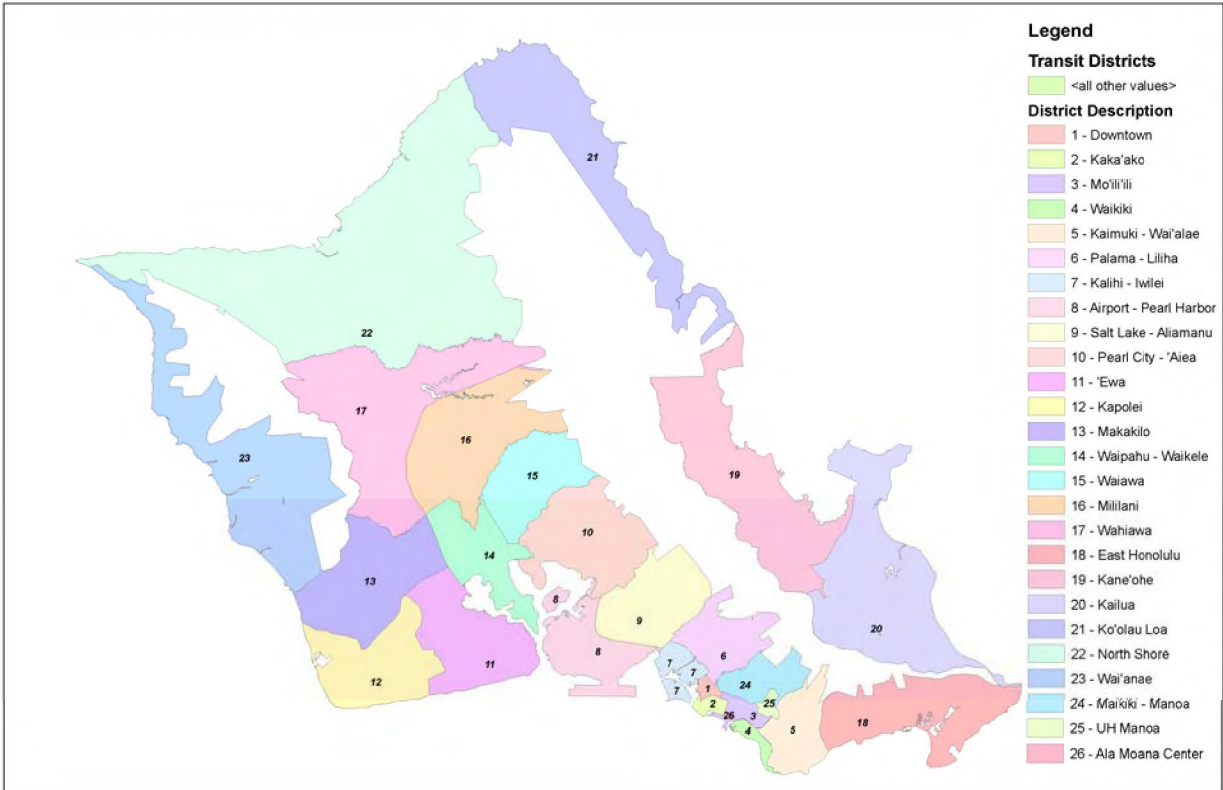


Figure 2-1. Transit District Areas Map

2.1 Current Conditions

2.1.1 Comparison of Estimated 2005 Transit Trips vs. 2005 On-Board Survey

The year 2005 was used for the current conditions model run since the most recent transit on-board survey was conducted in 2005. The 2005 transit shares were used to calculate new calibration target values.¹

¹ Travel Forecasting Methodology Report, 2008.

Figure 2-2 shows that the 2005 model run is estimating transit trips on a 26-district-to-26-district basis relatively well (74.3 percent R²) compared to the 2005 observed values.

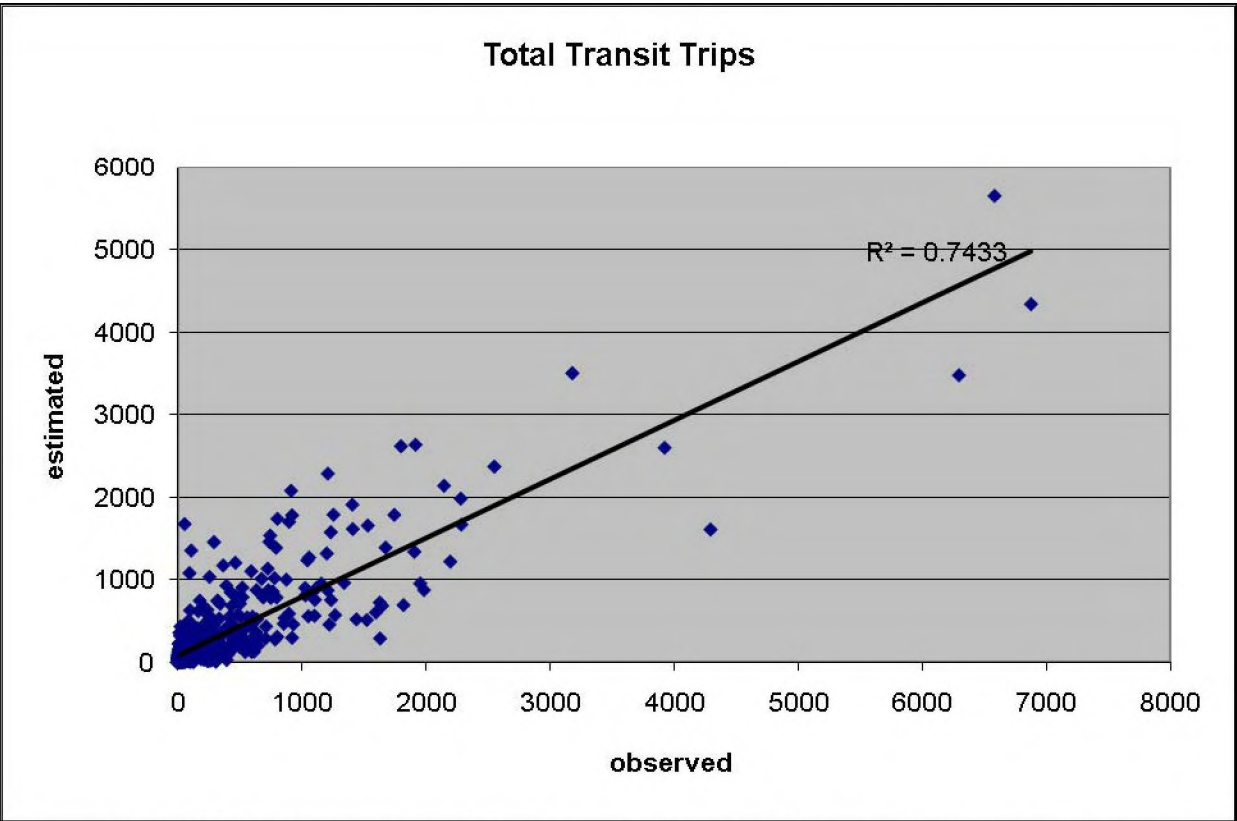


Figure 2-2. 2005 Observed and Estimated Transit Trips by District-to-District Pair

Figure 2-3 shows that the 2005 model run is predicting trips from *production* districts sufficiently with the exception of corridor areas, such as Palama, Waipahu, and Mililani. Palama and Waipahu are very heavy transit-dependent areas that have much higher transit usage than most other areas, thus the model is under-predicting transit trips in these areas. Mililani shows that the model is over-predicting transit trips from this area. However, the fact that the on-board survey shows **fewer** transit trips on routes 84 and 98 (Mililani expresses) compared to ridership reported to the National Transit Database (NTD)² suggests that trips FROM Mililani were under-surveyed and thus resulted in lower trips from this area than was reported to NTD.

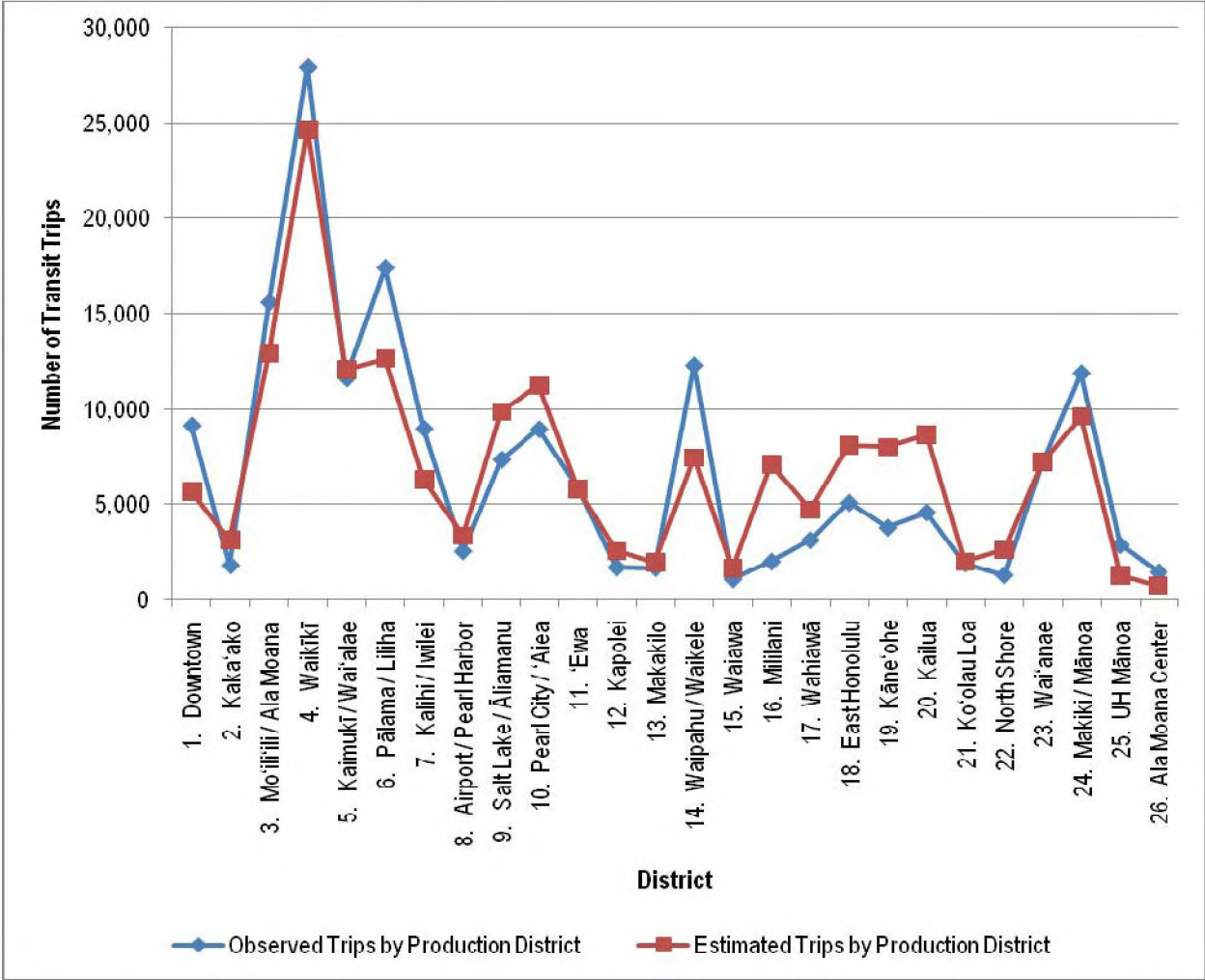


Figure 2-3. 2005 Observed vs. Estimated Transit Trips from Production District

Figure 2-4 also shows that the model is predicting trips to attraction districts reasonably. Waipahu trips appear to be under-predicted , and Mililani appears to be over-predicted. Ala Moana Center district also shows that the model under-predicted trips to it. However, based on the percentage of transit trips to this area in the 1992 on-board survey as compared to the 2005 on-board survey, it was noted that the on-board survey probably misstated Ala Moana Center as a final destination in many of the surveys (Ala Moana Center is a very high transfer point).³

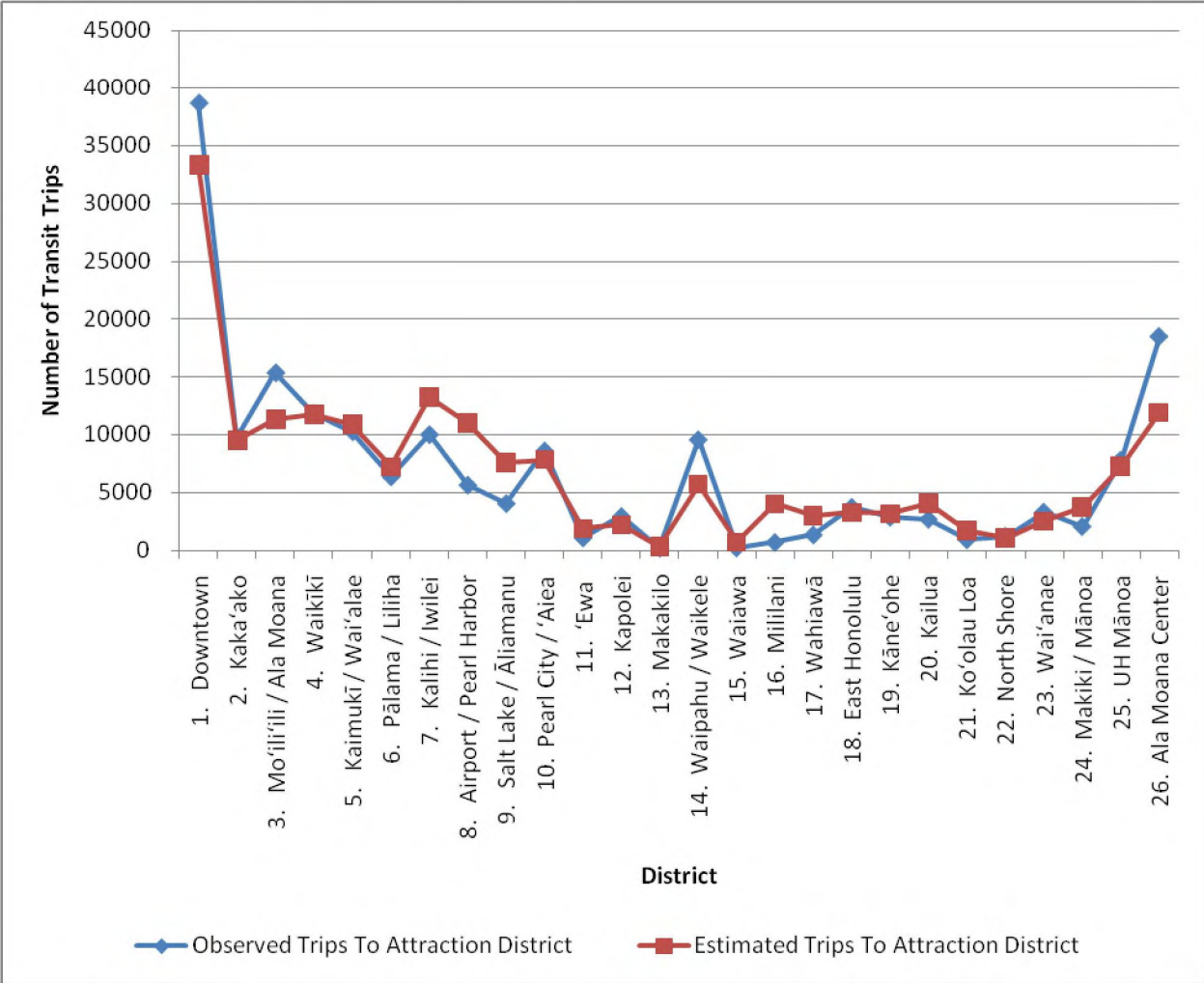


Figure 2-4. 2005 Observed vs. Estimated Transit Trips to Attraction District

² HHCTCP TDFM Current Year Ridership Comparisons (Deliverable 6.02.01.01.01), December 2007

³ Travel Forecasting Methodology Report, 2008.

Table 2-1 shows a comparison between the observed 2005 transit trips from the on-board survey and the 2005 estimated transit trips from the model for select key markets. The model predicts transit trips reasonably well for the Downtown, Kaka’ako, Mō’ili’ili, Waikīkī, and Kalihi areas and also the Leeward end of the island for home-based-work transit trips as well as overall transit trips. The overall total transit trips differ by -1 percent between observed and estimated. This table shows that the model is estimating the transit trips in key markets adequately.

Table 2-1. 2005 Observed vs. Estimated Transit Trips between Key Markets

Transit Trips Key Markets	Observed	Estimated	% Difference
Home-based work transit trips to Downtown–Waikīkī–Kalihi–Kaka’ako–Mō’ili’ili	39,031	36,125	7%
Home-based work transit trips from ‘Ewa–Kapolei–Waipahu–Mililani	7,191	6,788	6%
Home-based work transit trips from Downtown–Waikīkī–Kalihi–Kaka’ako–Mō’ili’ili	18,158	14,455	20%
All transit trips to Downtown–Waikīkī–Kalihi–Kaka’ako–Mō’ili’ili	85,470	79,189	7%
All transit trips from ‘Ewa–Kapolei–Waipahu–Mililani	21,818	22,824	-5%
All transit trips from Downtown–Waikīkī–Kalihi–Kaka’ako–Mō’ili’ili	63,498	52,638	17%
Total Transit Trips	179,181	180,947	-1%

Table 2-2 shows the comparison of observed vs. estimated transit trips by mode. The observed walk access trips were almost precise at 1.4 percent difference compared to estimated. The observed drive access trips also compared well at -4.3 percent compared to estimated.

Table 2-2. 2005 Observed vs. Estimated Transit Trips by Mode

Type	Observed	Estimated	% Difference
Walk access transit trips	166,539	168,850	1.4%
Drive access transit trips	12,642	12,097	-4.3%
Total	179,181	180,947	1.0%

Table 2-3 shows that the model is over-predicting local bus boardings by 6 percent and under-predicting express bus boardings by 18 percent. The under-prediction of express bus boardings could be the result of many express bus headways being 30 minutes or longer, which in the model looks relatively long. However, in actuality, the arrival of most bus riders at a bus stop is a scheduled event with a targeted departure time in mind and, as a result, their wait time for express buses is much shorter. Overall, the model over-predicts total boardings by 5 percent.

Table 2-3. 2005 Observed vs. Estimated Boardings by Route Type

Route type	Observed	Estimated	% Difference
Local bus	228,282	241,387	6%
Express bus	8,273	6,819	-18%
Total	236,555	248,206	5%

2.1.2 Mode Choice Aggregate Summary

Table 2-4 shows the mode choice results for the 2005 model run. 75.5 percent of all trips were made by private vehicles (single, 2, and 3+ occupants), while 5.6 percent of all trips were made by transit (express, local, park-and-ride, or kiss-and-ride). 15.5 percent of the trips are made by the auxiliary mode (walk and bike), while the remaining trips (3.4 percent) were made by taxi, shuttle, or tour bus. The journey-to-work/home-based work trip purpose shows that 12 percent of the trips are made by transit. Home-based college also shows a high percentage of trips made by transit (20.5 percent). These purposes show a much higher percentage of trips on transit compared to the overall percentage of just 6 percent. Home-based work, home-based-college, and home-based-school trips have an overall lower percentage of trips being made by private vehicle. Most of these trip purposes typically occur during the peak period.

Table 2-4. 2005 Mode Choice Summary Results by Trip Purpose

Mode	Purpose													Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	Visitor	Ground Access Air Passenger	
Single-occupant vehicle	320188	58209	104387	20706	84167	2380	28837	7047	66301	205850	86872	116423	16294	1117661
	59.9%	37.0%	65.5%	32.4%	52.6%	25.7%	53.7%	3.1%	29.6%	27.5%	22.1%	31.9%	27.2%	35.4%
Double-occupant vehicle	85572	54025	27944	24163	21609	1375	6925	56033	72364	230981	135260	0	0	716251
	16.0%	34.3%	17.5%	37.8%	13.5%	14.9%	12.9%	24.5%	32.3%	30.8%	34.4%	0.0%	0.0%	22.7%
Three-or-more occupant vehicle	19688	32647	7539	11533	8568	311	2001	92637	53484	192060	125371	0	0	545839
	3.7%	20.7%	4.7%	18.0%	5.4%	3.4%	3.7%	40.6%	23.9%	25.6%	31.9%	0.0%	0.0%	17.3%
Walk to express transit	4807	391	221	341	0	0	364	260	0	0	0	0	0	6384
	0.9%	0.2%	0.1%	0.5%	0.0%	0.0%	0.7%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
Walk to local bus transit	52826	4041	7985	4773	4293	4248	9759	14113	9147	29102	3908	17592	679	162466
	9.9%	2.6%	5.0%	7.5%	2.7%	45.9%	18.2%	6.2%	4.1%	3.9%	1.0%	4.8%	1.1%	5.1%
Park-and-ride transit	1692	0	0	0	0	0	205	177	0	0	0	0	0	2074
	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Kiss-and-ride transit	6036	184	0	0	0	0	621	908	721	1553	0	0	0	10023
	1.1%	0.1%	0.0%	0.0%	0.0%	0.0%	1.2%	0.4%	0.3%	0.2%	0.0%	0.0%	0.0%	0.3%
Auxiliary walk	34583	6651	10631	2403	39699	938	2546	50377	20019	80559	39274	165104	0	452784
	6.5%	4.2%	6.7%	3.8%	24.8%	10.1%	4.7%	22.1%	8.9%	10.7%	10.0%	45.3%	0.0%	14.3%
Auxiliary bike	9109	1241	687	1	1539	0	2448	6826	1673	9326	1954	0	0	34804
	1.7%	0.8%	0.4%	0.0%	1.0%	0.0%	4.6%	3.0%	0.7%	1.2%	0.5%	0.0%	0.0%	1.1%
Taxi	0	0	0	0	0	0	0	0	0	0	0	9312	9776	19088
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	16.3%	0.6%
Shuttle/tour bus	0	0	0	0	0	0	0	0	0	0	0	56023	33229	89252
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.4%	55.4%	2.8%
Total	534501	157389	159394	63920	159875	9252	53706	228378	223709	749431	392639	364454	59978	3156626

2.2 No Build vs. Current Conditions Forecasts

2.2.1 Comparison of Socioeconomic Data between 2005 and 2030

Table 2-5 shows the change in population and households by district from the year 2005 to 2030. Population increases by 22 percent during this time while households increase by 31 percent. This indicates that the average household size will decrease from 3.0 to 2.8 persons per household. The greatest increase in population and/or households is in the Kaka’ako, Kapolei, and Waiawa districts. These areas are projected to increase between two and four times the size they were in 2005. Pearl City–‘Aiea district tops the list for the most population and households in 2005, while ‘Ewa district tops the list for most population and households in 2030.

Table 2-5. Comparison of 2005 vs. 2030 Population and Households

Transit District	Population			Households		
	2005	2030	% increase from 2005	2005	2030	% increase from 2005
1. Downtown	12,730	22933	80%	6,564	12380	89%
2. Kaka'ako	7,674	33745	340%	4,083	19386	375%
3. Mō'ili'ili–Ala Moana	40,301	48817	21%	21,167	26723	26%
4. Waikīkī	20,902	22869	9%	12,301	13965	14%
5. Kaimukī–Wai'alaē	55,302	57774	4%	20,287	22035	9%
6. Palama–Liliha	65,174	67859	4%	19,544	21414	10%
7. Kalihi–Iwilei	25,721	33986	32%	7,413	10224	38%
8. Airport–Pearl Harbor	11,587	12473	8%	3,121	3573	14%
9. Salt Lake–Āliamanu	54,465	53784	-1%	17,490	18018	3%
10. Pearl City–‘Aiea	78,909	79119	0%	25,114	26328	5%
11. ‘Ewa	51,587	91215	77%	14,524	27595	90%
12. Kapolei	16,718	56261	237%	4,833	17301	258%
13. Makakilo	15,710	29550	88%	4,659	9126	96%
14. Waipahu–Waikēle	56,628	61277	8%	14,906	17563	18%
15. Waiawa	12,195	45552	274%	4,014	15129	277%
16. Mililani	53,685	53602	0%	17,783	19171	8%
17. Wahiawā	36,510	35186	-4%	10,471	10818	3%
18. East Honolulu	49,748	51304	3%	17,303	19191	11%
19. Kāne‘ohe	54,809	53529	-2%	17,152	18058	5%
20. Kailua	63,954	63147	-1%	18,635	19744	6%
21. Ko‘olau Loa	14,697	16516	12%	3,646	4438	22%
22. North Shore	18,395	20750	13%	6,190	7236	17%
23. Wai‘anae	44,656	52285	17%	11,933	14207	19%
24. Makiki–Mānoa	44,980	47692	6%	19,564	21671	11%
25. UH Mānoa	5,873	6094	4%	1,439	1627	13%
26. Ala Moana Center	3	3	0%	2	2	0%
Total	912,913	1,117,322	22%	304,138	396,923	31%

Table 2-6 compares year 2005 and future year 2030 employment data. The districts with the greatest employment increases are ‘Ewa, Kapolei, and Waiawa at 89, 214, and 141 percent, respectively. This is consistent with the City’s plan to establish Kapolei as the “second city.” Downtown tops the list with the most employment in 2005 and 2030, and Kapolei comes in relatively close second for 2030.

Table 2-6. Comparison of 2005 vs. 2030 Employment

Transit District	Employment		
	2005	2030	% increase from 2005
1. Downtown	64,684	70945	10%
2. Kaka’ako	24,780	34128	38%
3. Mō’ili’ili–Ala Moana	36,665	42967	17%
4. Waikīkī	46,456	49432	6%
5. Kaimukī–Wai’alae	21,219	24382	15%
6. Palama–Liliha	18,153	21160	17%
7. Kalihi–Iwilei	42,278	47995	14%
8. Airport–Pearl Harbor	39,729	40871	3%
9. Salt Lake–Āliamanu	34,044	35033	3%
10. Pearl City–‘Aiea	24,910	30968	24%
11. ‘Ewa	8,195	15516	89%
12. Kapolei	17,349	54420	214%
13. Makakilo	1,998	3434	72%
14. Waipahu–Waikēle	15,552	20375	31%
15. Waiawa	4,294	10356	141%
16. Mililani	17,972	19789	10%
17. Wahiawā	18,020	19511	8%
18. East Honolulu	6,931	6795	-2%
19. Kāne’ohe	12,121	12726	5%
20. Kailua	24,019	24772	3%
21. Ko’olau Loa	5,883	6945	18%
22. North Shore	3,909	4355	11%
23. Wai’anae	7,253	7126	-2%
24. Makiki–Mānoa	7,668	9197	20%
25. UH Mānoa	12,889	13503	5%
26. Ala Moana Center	5,880	6010	2%
Total	522,851	632,711	21%

2.2.2 Total Person and Transit Trips Comparisons with 2005

As compared to year 2005, total systemwide daily person trips are projected to increase by about 26 percent for the No Build Alternative in 2030, keeping pace with the projected growth in population between 2005 and 2030. Transit mode share for total daily trips is projected to remain at 6 percent (Table 2-7).

Table 2-7. Total Daily Person Trips by Mode—2005 and 2030 No Build Alternative

Alternative	2005		2030 No Build		Percentage Growth
	Number	Percent	Number	Percent	
Trips by Residents					
Private automobile	2,247,034	82%	2,815,819	82%	25%
Transit	162,676	6%	205,428	6%	26%
Bike/walk	322,484	12%	432,787	13%	34%
Total Trips by Residents	2,732,194	100%	3,454,034	100%	26%
Trips by Visitors					
Private Automobile	116,423	32%	160,093	37%	38%
Transit	17,592	5%	19,723	5%	12%
Taxi	9,312	3%	9,670	2%	4%
Tour Bus	56,023	15%	77,506	18%	38%
Bike/Walk	165,104	45%	163,613	38%	-1%
Total Trips by Visitors	364,454	100%	430,605	100%	18%
Ground Access Trips by Air Passengers					
Private Automobile	16,294	27%	27,480	26%	69%
Transit	679	16%	1,191	16%	75%
Taxi	9,776	1%	16,433	1%	68%
Tour Bus	11,983	36%	38,012	37%	217%
Shuttle Bus	21,246	20%	20,758	20%	-2%
Total Trips by Air Passengers	59,978	100%	103,874	100%	73%
Trips by Truck	38,616		51,559		34%
Total Daily Trips (All)	3,195,242	100%	4,040,072	100%	26%

The tables below show the district summaries for total person trips and total transit trips in year 2005 versus 2030 No Build to show how the growth in population and employment, as well as highway and transit improvements to the existing infrastructure, has changed district-to-district trip movements.

Table 2-8 displays the 2005 total person trip table and shows that Waikīkī had the highest number of productions and Pearl City–‘Aiea had the second highest. This is consistent with the population and household data for 2005, which showed that Pearl City–‘Aiea had the highest population and households of all 26 districts. Waikīkī had a significant amount of visitors daily in 2005 (185,445).⁴ Waikīkī, Downtown, and Iwilei had the highest attractions to their districts. This is consistent data that shows those three districts had the highest employment in 2005.

Table 2-9 displays the 2030 No Build total person trip table and shows that Waikīkī has the highest number of productions, almost all due to the significant number of visitors to that area. Kapolei has the second highest productions, followed by Pearl City–‘Aiea. Kapolei also has an increased number of visitors in 2030 because of the growth of resort and condos in the Ko ‘Olina area. Waikīkī, Kapolei, and Downtown have the highest attractions to its districts in 2030. These districts have the highest employment in 2030.

Table 2-10 shows the growth in person trips from 2005 to 2030 No Build. The growth is generally occurring from the Kapolei, Waiawa, and Kaka‘ako districts, as these districts have the highest percentage increase in population. There are also large increases in person trips to Kapolei, Waiawa, ‘Ewa, and Makakilo, as these districts have the highest percentage increase in employment. The overall percentage increase in trips from 2005 to 2030 is 26 percent, which is consistent with the 22 percent increase in population, 31 percent increase in households, and 21 percent increase in employment.

Table 2-11 displays the 2005 transit trip table and shows that, like the 2005 on-board survey, Waikīkī, Mō‘ili‘ili, and the Palama–Liliha areas produce the highest number of transit trips, while Downtown, Kalihi–Iwilei, and Ala Moana Center attract the highest number of transit trips.

Table 2-12 displays the 2030 No Build transit trip table and shows that Waikīkī, Mō‘ili‘ili, and the Palama–Liliha areas still produce the highest number of transit trips, while Downtown, Kalihi–Iwilei, and Kapolei attract the highest number of transit trips. The Kapolei district has a significant increase in transit trips attracted to it as this area is intended to be the “second city,” and the plan is to have a 214-percent increase in employment over 2005 in the year 2030.

Table 2-13 displays the growth in transit trips from 2005 to 2030 No Build. The largest percentage growths are shown in the areas that are expected to grow, such as ‘Ewa, Kapolei, Waiawa, and Kaka‘ako.

Figure 2-5 and Figure 2-6 graphically display the differences in year 2005 versus 2030 No Build in number of transit trips produced from each district as well as attracted to each district.

⁴ http://hawaii.gov/dbedt/info/visitor-stats/HAWAII_HISTORICAL_2007.xls

Table 2-8. Daily Total Person Trips (Production to Attraction Format)—2005 Base Year

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'ālae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	35783	10297	6887	4019	2997	6853	10833	3141	2814	1282	102	225	35	361	94	265	253	644	555	969	121	115	132	2199	1262	2223	94461
Kaka'ako	10388	13944	8155	3862	2154	2217	3267	1226	1054	475	64	102	9	149	30	134	116	379	236	436	55	48	97	1638	933	3945	55113
Mō'ili'ili	17368	13800	38889	22821	14097	4714	6632	6855	2355	1365	92	168	36	311	66	219	221	2341	436	823	498	444	108	9151	6606	16084	166500
Waikīkī	28317	9036	22048	192584	25303	3204	10659	57003	1256	6680	89	178	25	780	57	214	214	13978	319	879	7162	6413	150	13438	5364	37233	442583
Kaimukī-Wai'ālae	14338	8089	19516	20524	58678	4915	7280	4247	3143	1353	124	243	49	405	71	282	268	5996	531	1022	191	118	191	8050	8947	5092	173663
Palama-Liliha	25891	10191	8602	4754	4883	35576	33582	10754	11493	3906	133	292	45	737	142	328	328	789	1883	2015	170	78	132	4228	2917	3277	167126
Kalihi-Iwilei	15547	5631	4160	2842	2551	13271	39864	8572	8470	3537	151	278	45	590	131	327	313	549	1012	938	144	117	172	1628	1259	1332	113431
Airport-Pearl Harbor	3813	1321	1489	2588	1469	2474	7516	32046	11263	4201	191	349	65	1338	341	463	417	481	593	1581	295	248	225	641	649	818	76875
Salt Lake-Āliamanu	10156	4723	4123	3192	3016	7448	18968	31530	62028	15428	329	723	131	2543	575	983	839	623	1711	2505	328	240	382	1557	2334	1370	177785
Pearl City-'Aiea	9554	3880	4100	3554	3185	5479	14294	25296	27330	93206	1058	2730	426	14104	2970	4508	3207	769	2011	2661	586	459	690	1639	3350	1467	232513
'Ewa	4121	2066	2403	4753	2260	2242	4954	7564	5736	9771	41404	9707	1112	11779	741	1999	1817	675	765	1440	885	338	1899	1350	3484	830	126095
Kapolei	2076	728	997	5112	1327	832	1837	3856	1872	3667	2994	24646	2351	3909	319	935	854	766	322	592	676	514	2643	857	1181	1332	67195
Makakilo	1285	691	795	1507	786	814	1552	2209	1685	2552	871	6471	5748	2004	184	533	474	253	252	487	354	114	903	527	1204	268	34523
Waipahu-Waikele	4278	1755	2672	6651	1868	2305	4899	8534	7151	18662	5107	6876	1201	55208	4983	7028	4502	506	812	1235	678	508	1642	1065	2529	939	153594
Waiawa	991	383	606	1400	385	491	1171	2098	1715	4515	354	825	126	6446	3808	3835	1776	104	186	249	124	158	205	191	547	206	32895
Mililani	6810	2000	2322	2312	2128	2229	4719	7825	6027	9501	978	2503	354	8994	4042	55773	24827	613	859	1519	966	1454	696	1146	3248	764	154609
Wahiawa	2963	1080	1235	1394	1173	1096	2224	4021	2794	3588	602	1459	218	3497	1383	18924	45169	420	514	956	667	2013	475	612	1923	456	100856
East Honolulu	10634	5354	10857	11022	22675	3595	5665	4856	2761	1304	123	255	62	462	74	299	313	40416	690	3152	400	243	208	4912	5732	3602	139666
Kāne'ohe	9186	3731	3591	3368	2767	7634	10724	7518	7297	3465	202	429	69	916	180	509	561	752	64043	16082	1193	219	303	1582	2639	1399	150359
Kailua	13224	4140	3737	3230	2969	5744	6202	5311	4375	2524	309	518	103	968	181	612	618	1772	10927	91895	584	299	445	1588	2919	1449	166643
Ko'olau Loa	1361	478	643	3125	825	406	897	2355	729	607	110	195	41	243	54	248	287	520	785	600	25253	880	181	474	649	929	42875
North Shore	1563	785	898	1179	912	678	1213	1963	1417	1165	205	481	75	936	295	2705	4893	332	365	715	3191	22699	269	472	1309	357	51072
Wai'anae	3821	1921	2141	3243	2159	1381	3011	5933	3744	2517	969	8649	866	2283	281	898	890	769	814	1678	730	407	54520	970	3072	1095	108762
Makiki-Mānoa	17468	10940	19005	9236	8409	6920	7785	3890	2617	1070	63	141	22	328	69	140	141	1162	460	854	100	80	93	17619	6771	6943	122326
UH Mānoa	2049	1024	3056	1850	2995	684	969	492	492	218	33	52	16	107	24	62	76	379	101	161	34	34	48	1802	6571	615	23944
Ala Moana Center	1688	2189	5662	2461	841	394	625	229	254	127	26	32	8	41	14	38	39	157	71	130	19	23	31	615	383	3681	19778
Total	254673	120177	178589	322583	172812	123596	211342	249324	181872	196686	56683	68527	13238	119439	21109	102261	93413	76145	91253	135574	45404	38263	66840	79951	77782	97706	3195242

Table 2-9. Daily Total Person Trips (Production to Attraction Format)—2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'ālae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikēle	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	45633	16794	9507	4631	3983	10230	16499	4639	3649	1803	204	578	57	437	214	290	253	761	629	1177	155	120	133	3179	1810	2857	130224
Kaka'ako	24914	37419	20148	8185	5002	5501	8814	3884	2217	1124	156	438	49	329	143	209	215	757	462	823	114	79	112	4651	2350	8993	137090
Mō'ili'ili	20187	20757	50923	24763	16479	5489	8302	8598	2713	1739	161	496	55	389	180	230	219	2569	507	877	534	436	153	11573	7737	17311	203378
Waikīkī	28435	10972	24140	192152	26731	3321	11282	69038	1289	6764	156	452	51	951	150	224	235	13969	344	953	7134	6376	150	13731	5896	36688	461585
Kaimukī-Wai'ālae	13999	9781	21882	20505	65721	5188	7967	5075	3331	1728	260	625	86	493	232	298	263	6508	543	1043	202	137	197	8645	9939	4454	189104
Palama-Liliha	26135	12227	8788	4388	5325	40501	36585	12157	12649	5160	259	784	67	1024	399	398	325	865	2115	2230	208	114	145	4374	2496	2584	182302
Kalihi-Iwilei	18840	8202	5080	3142	3095	16879	48938	10019	9652	4417	301	959	100	732	397	505	452	629	1135	1183	215	129	189	1946	1211	1358	139707
Airport-Pearl Harbor	3966	1640	1538	3285	1656	2674	7500	34208	12091	5436	328	857	81	1652	850	487	393	587	572	1605	375	311	212	746	744	1004	84799
Salt Lake-Āliamanu	9669	5389	3834	2759	2934	7748	17978	32529	62673	17573	592	1740	168	2857	1371	999	785	618	1641	2439	372	237	353	1495	2544	930	182229
Pearl City-'Aiea	8404	4078	3569	3097	2997	5055	12060	24398	25153	109094	2431	7144	639	16504	8069	4684	2944	743	1956	2567	625	479	682	1508	3744	930	253556
'Ewa	4620	2659	2601	5315	2441	2333	4898	10196	5707	11417	85272	63766	3795	15228	2176	2893	2727	719	923	1713	965	467	2664	1308	2944	612	240361
Kapolei	6919	1996	2966	23454	4507	1607	4487	19425	3026	7373	18635	131882	7607	7322	1521	2034	1836	3278	746	1297	2450	2327	4714	2974	2137	6323	272846
Makakilo	1340	794	803	1529	774	737	1431	2667	1628	2890	3860	27852	11057	2648	543	751	673	233	284	517	305	147	2110	431	911	180	67097
Waipahu-Waikēle	4171	2079	2897	7083	1993	2378	4268	8200	6350	20299	13155	17443	1791	57837	9504	6667	4129	586	812	1308	822	516	1143	1213	2699	723	180068
Waiawa	2890	1386	1854	4390	1261	1422	3051	6144	4504	15141	2743	7422	718	16247	25201	10802	6284	337	571	861	441	502	570	641	1439	504	117328
Mililani	5618	1967	1864	1855	1761	1837	4024	7258	5045	11188	2270	6859	576	10501	11399	57119	24911	508	786	1321	793	1271	944	863	2228	452	165220
Wahiawa	2467	1108	1068	1241	1038	916	1942	4822	2264	3896	1169	3492	294	3723	3395	19338	46314	366	477	827	599	1802	926	518	1321	299	105624
East Honolulu	10846	6565	12134	12394	25308	3914	6496	7244	3127	1912	274	813	77	529	265	321	319	43325	794	3429	568	367	229	5600	6174	3744	156770
Kāne'ohe	8497	4092	3424	3554	2836	7765	10648	8362	7323	4430	380	1220	126	1130	494	573	489	770	69055	16989	1258	288	282	1519	2606	1207	159320
Kailua	12655	4737	3760	3535	3128	5902	6628	6281	4362	3168	521	1437	148	1079	472	637	584	1841	11361	97103	700	356	437	1642	2634	1332	176442
Ko'olau Loa	1969	686	879	5730	1267	513	1250	6057	830	960	229	671	73	299	152	296	309	879	853	643	30454	1409	210	790	781	1708	59899
North Shore	1708	1015	1013	1810	1040	754	1395	2401	1517	1491	439	1390	125	1101	731	2786	5224	422	405	757	4264	25446	371	552	1212	484	59855
Wai'anae	3518	1849	1926	4361	2077	1318	2587	6521	3123	2649	2481	23858	2173	2630	793	1665	2643	884	678	1397	961	728	56553	1045	2082	1244	131746
Makiki-Mānoa	17496	13696	21473	8995	9728	7303	8657	4881	2908	1406	124	383	33	417	130	179	146	1340	502	892	137	98	95	20462	9801	6153	137437
UH Mānoa	2040	1290	3450	1874	3340	731	1081	556	489	259	65	142	19	146	41	68	59	414	104	168	44	30	53	2032	7338	573	26407
Ala Moana Center	1701	2691	6028	2214	804	381	654	183	212	119	32	71	9	41	24	38	32	132	60	117	21	19	31	617	352	3094	19678
Total	288640	175871	217552	356244	197229	142400	239425	305748	187834	243438	136497	302776	29975	146247	68847	114492	102765	84041	98315	144237	54717	44192	73658	94056	85134	105743	4040072

Table 2-10. Percent Growth in Daily Total Person Trips (Production to Attraction Format)—2005 Base Year to 2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'ālae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	28%	63%	38%	15%	33%	49%	52%	48%	30%	41%	100%	157%	63%	21%	128%	9%	0%	18%	13%	21%	28%	4%	1%	45%	43%	29%	38%
Kaka'ako	140%	168%	147%	112%	132%	148%	170%	217%	110%	137%	144%	329%	444%	121%	377%	56%	85%	100%	96%	89%	107%	65%	15%	184%	152%	128%	149%
Mō'ili'ili	16%	50%	31%	9%	17%	16%	25%	25%	15%	27%	75%	195%	53%	25%	173%	5%	-1%	10%	16%	7%	7%	-2%	42%	26%	17%	8%	22%
Waikīkī	0%	21%	9%	0%	6%	4%	6%	21%	3%	1%	75%	154%	104%	22%	163%	5%	10%	0%	8%	8%	0%	-1%	0%	2%	10%	-1%	4%
Kaimukī-Wai'ālae	-2%	21%	12%	0%	12%	6%	9%	20%	6%	28%	110%	157%	76%	22%	227%	6%	-2%	9%	2%	2%	6%	16%	3%	7%	11%	-13%	9%
Palama-Liliha	1%	20%	2%	-8%	9%	14%	9%	13%	10%	32%	95%	169%	49%	39%	181%	21%	-1%	10%	12%	11%	22%	46%	10%	3%	-14%	-21%	9%
Kalihi-Iwilei	21%	46%	22%	11%	21%	27%	23%	17%	14%	25%	99%	245%	122%	24%	203%	54%	44%	15%	12%	26%	49%	10%	10%	20%	-4%	2%	23%
Airport-Pearl Harbor	4%	24%	3%	27%	13%	8%	0%	7%	7%	29%	72%	146%	25%	23%	149%	5%	-6%	22%	-4%	2%	27%	25%	-6%	16%	15%	23%	10%
Salt Lake-Āliamanu	-5%	14%	-7%	-14%	-3%	4%	-5%	3%	1%	14%	80%	141%	28%	12%	138%	2%	-6%	-1%	-4%	-3%	13%	-1%	-8%	-4%	9%	-32%	2%
Pearl City-'Aiea	-12%	5%	-13%	-13%	-6%	-8%	-16%	-4%	-8%	17%	130%	162%	50%	17%	172%	4%	-8%	-3%	-3%	-4%	7%	4%	-1%	-8%	12%	-37%	9%
'Ewa	12%	29%	8%	12%	8%	4%	-1%	35%	-1%	17%	106%	557%	241%	29%	194%	45%	50%	7%	21%	19%	9%	38%	40%	-3%	-15%	-26%	91%
Kapolei	233%	174%	198%	359%	240%	93%	144%	404%	62%	101%	522%	435%	224%	87%	377%	118%	115%	328%	132%	119%	262%	353%	78%	247%	81%	375%	306%
Makakilo	4%	15%	1%	1%	-2%	-9%	-8%	21%	-3%	13%	343%	330%	92%	32%	195%	41%	42%	-8%	13%	6%	-14%	29%	134%	-18%	-24%	-33%	94%
Waipahu-Waikele	-2%	18%	8%	7%	7%	3%	-13%	-4%	-11%	9%	158%	154%	49%	5%	91%	-5%	-8%	16%	0%	6%	21%	2%	-30%	14%	7%	-23%	17%
Waiawa	192%	262%	206%	214%	228%	190%	161%	193%	163%	235%	675%	800%	470%	152%	562%	182%	254%	224%	207%	246%	256%	218%	178%	236%	163%	145%	257%
Mililani	-17%	-2%	-20%	-20%	-17%	-18%	-15%	-7%	-16%	18%	132%	174%	63%	17%	182%	2%	0%	-17%	-8%	-13%	-18%	-13%	36%	-25%	-31%	-41%	7%
Wahiawa	-17%	3%	-14%	-11%	-12%	-16%	-13%	20%	-19%	9%	94%	139%	35%	6%	145%	2%	3%	-13%	-7%	-13%	-10%	-10%	95%	-15%	-31%	-34%	5%
East Honolulu	2%	23%	12%	12%	12%	9%	15%	49%	13%	47%	123%	219%	24%	15%	258%	7%	2%	7%	15%	9%	42%	51%	10%	14%	8%	4%	12%
Kāne'ohe	-7%	10%	-5%	6%	2%	2%	-1%	11%	0%	28%	88%	184%	83%	23%	174%	13%	-13%	2%	8%	6%	5%	32%	-7%	-4%	-1%	-14%	6%
Kailua	-4%	14%	1%	9%	5%	3%	7%	18%	0%	26%	69%	177%	44%	11%	161%	4%	-5%	4%	4%	6%	20%	19%	-2%	3%	-10%	-8%	6%
Ko'olau Loa	45%	44%	37%	83%	54%	26%	39%	157%	14%	58%	108%	244%	78%	23%	181%	19%	8%	69%	9%	7%	21%	60%	16%	67%	20%	84%	40%
North Shore	9%	29%	13%	54%	14%	11%	15%	22%	7%	28%	114%	189%	67%	18%	148%	3%	7%	27%	11%	6%	34%	12%	38%	17%	-7%	36%	17%
Wai'anae	-8%	-4%	-10%	34%	-4%	-5%	-14%	10%	-17%	5%	156%	176%	151%	15%	182%	85%	197%	15%	-17%	-17%	32%	79%	4%	8%	-32%	14%	21%
Makiki-Mānoa	0%	25%	13%	-3%	16%	6%	11%	25%	11%	31%	97%	172%	50%	27%	88%	28%	4%	15%	9%	4%	37%	23%	2%	16%	45%	-11%	12%
UH Mānoa	0%	26%	13%	1%	12%	7%	12%	13%	-1%	19%	97%	173%	19%	36%	71%	10%	-22%	9%	3%	4%	29%	-12%	10%	13%	12%	-7%	10%
Ala Moana Center	1%	23%	6%	-10%	-4%	-3%	5%	-20%	-17%	-6%	23%	122%	13%	0%	71%	0%	-18%	-16%	-15%	-10%	11%	-17%	0%	0%	-8%	-16%	-1%
Total	13%	46%	22%	10%	14%	15%	13%	23%	3%	24%	141%	342%	126%	22%	226%	12%	10%	10%	8%	6%	21%	15%	10%	18%	9%	8%	26%

Table 2-11. Daily Total Transit Person Trips (Production to Attraction Format)—2005 Base Year

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikēle	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	870	456	684	520	308	421	708	331	296	95	3	7	1	31	4	13	9	41	47	58	7	2	4	145	154	460	5675
Kaka'ako	683	207	348	390	222	163	329	105	79	32	4	4	0	9	2	3	3	19	18	18	1	0	3	73	119	277	3111
Mō'ili'ili	3474	1010	961	1268	1534	550	1019	446	294	126	0	11	2	33	2	11	10	187	48	64	12	21	2	411	536	873	12905
Waikīkī	4334	1234	1784	1908	2368	536	1000	1786	158	344	4	7	0	544	1	24	37	809	60	363	140	197	15	747	603	5644	24647
Kaimukī-Wai'alae	2615	781	1613	1574	1666	344	578	188	169	77	2	9	1	22	2	10	7	359	25	74	10	1	3	499	563	851	12043
Palama-Liliha	3499	874	753	512	345	1219	2136	778	708	276	5	17	2	92	5	19	7	46	106	84	14	1	4	211	397	520	12630
Kalihi-Iwilei	1388	484	433	297	201	554	785	619	527	229	5	14	2	45	6	11	4	49	49	34	9	4	2	96	165	288	6300
Airport-Pearl Harbor	430	89	75	118	235	236	459	800	330	211	3	5	1	78	13	16	6	8	17	20	5	5	1	16	61	97	3335
Salt Lake-Āliamanu	1655	951	316	229	201	417	1134	1352	1699	856	5	15	0	153	18	40	23	19	62	54	11	4	10	81	321	220	9846
Pearl City-'Aiea	1337	289	277	223	171	301	847	1454	1204	2633	56	108	17	904	126	233	137	29	84	66	26	9	21	71	416	177	11216
'Ewa	589	162	187	402	140	143	241	285	188	365	1172	438	51	571	16	66	41	36	21	40	24	6	64	79	337	117	5781
Kapolei	225	69	62	162	61	65	100	101	62	119	158	528	112	165	4	24	13	13	9	19	10	4	192	38	141	72	2528
Makakilo	265	78	91	176	65	72	117	94	72	94	34	258	59	69	6	17	7	18	17	15	16	1	55	51	160	50	1957
Waipahu-Waikēle	692	139	239	557	115	143	289	364	254	893	319	324	41	1607	228	357	159	21	24	50	24	10	99	57	305	129	7439
Waiawa	146	27	48	94	17	28	61	90	54	225	18	33	1	309	43	224	88	2	5	5	3	9	11	12	61	23	1637
Mililani	784	166	202	179	135	126	301	337	197	379	39	64	6	451	155	1673	1079	23	37	38	51	65	28	76	372	113	7076
Wahiawa	391	107	124	121	87	83	177	202	128	206	23	42	4	218	78	1033	1102	24	16	40	36	94	8	41	241	79	4705
East Honolulu	1458	336	757	748	1386	164	323	133	109	51	4	3	0	18	1	15	9	1317	26	147	14	1	4	238	472	354	8088
Kāne'ohe	1737	353	321	283	184	481	628	319	286	132	2	13	1	40	4	14	12	27	1778	633	132	8	8	85	326	188	7995
Kailua	2283	418	370	306	221	418	492	272	224	125	8	9	3	46	4	19	7	75	552	2076	36	2	13	81	395	200	8655
Ko'olau Loa	217	65	70	101	48	36	73	60	42	22	0	2	0	12	1	11	10	8	69	24	928	28	7	22	64	56	1976
North Shore	268	91	92	96	71	61	123	112	71	63	5	8	5	50	13	156	207	14	22	22	204	618	9	39	148	70	2638
Wai'anae	900	292	329	366	221	149	407	433	264	201	38	328	41	151	16	44	34	48	61	91	23	12	1980	106	432	254	7221
Makiki-Mānoa	2596	680	953	872	737	460	787	301	192	92	3	10	1	82	5	6	9	71	35	38	10	17	2	440	466	723	9588
UH Mānoa	317	84	146	128	151	46	74	23	24	12	1	0	0	35	2	0	3	19	1	3	0	0	0	70	15	111	1265
Ala Moana Center	155	92	99	145	41	19	50	13	10	6	0	0	1	1	0	1	1	5	3	5	0	0	1	21	21	0	690
Total	33308	9534	11334	11775	10931	7235	13238	10998	7641	7864	1911	2257	352	5736	755	4040	3024	3287	3192	4081	1746	1119	2546	3806	7291	11946	180947

Table 2-12. Daily Total Transit Person Trips (Production to Attraction Format)—2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	970	785	1004	655	520	679	1058	519	463	204	12	35	2	53	16	20	13	61	73	95	13	3	3	234	350	580	8418
Kaka'ako	1725	569	909	962	732	561	1110	375	278	130	7	30	1	38	15	13	9	69	47	58	8	3	8	300	419	521	8895
Mō'ili'ili	3916	1449	1196	1317	1767	615	1241	510	326	178	8	36	3	45	18	15	16	221	62	63	20	21	5	501	640	906	15095
Waikīkī	4289	1512	2012	1896	2679	590	1149	2000	176	337	8	34	2	701	12	33	52	858	67	448	135	185	20	813	727	5448	26182
Kaimukī-Wai'alae	2444	911	1726	1559	1878	323	601	207	164	88	8	27	2	26	13	10	7	378	25	78	12	3	3	526	693	740	12453
Palama-Liliha	3401	1025	745	440	371	1375	2244	846	774	318	12	56	4	116	25	22	16	45	126	109	18	4	4	212	287	426	13020
Kalihi-Iwilei	1490	682	502	313	244	704	975	749	639	301	8	44	2	57	25	17	14	53	56	46	6	2	4	114	174	298	7518
Airport-Pearl Harbor	417	97	82	142	279	284	442	858	377	305	7	22	2	103	40	14	8	8	15	20	5	6	3	17	78	102	3733
Salt Lake-Āliamanu	1473	1137	294	182	185	426	1031	1335	1650	980	20	70	4	170	62	34	23	18	62	55	17	4	8	66	361	152	9817
Pearl City-'Aiea	1131	276	232	183	151	251	737	1381	1062	3119	130	388	21	1065	469	241	129	26	82	60	24	13	24	65	491	126	11876
'Ewa	957	322	281	730	207	177	341	384	219	513	2511	3322	195	868	94	112	81	44	40	69	47	11	135	106	298	119	12183
Kapolei	603	170	184	580	142	110	254	308	131	295	900	4461	435	439	61	65	52	40	28	39	25	12	388	73	168	349	10311
Makakilo	289	103	103	188	79	70	132	119	83	130	227	1714	237	161	25	28	22	18	17	23	14	3	128	43	100	43	4101
Waipahu-Waikele	755	196	285	748	143	138	272	351	227	991	874	1020	89	1922	497	375	174	33	30	40	32	16	58	80	304	116	9765
Waiawa	571	152	226	422	115	94	249	328	205	965	188	496	37	1063	887	726	378	25	28	39	33	27	32	55	229	92	7663
Mililani	751	184	205	167	134	115	281	274	169	491	88	289	16	600	594	1823	1161	26	28	36	45	64	25	59	289	69	7985
Wahiawa	392	126	130	122	92	71	159	163	103	210	46	155	10	244	194	947	1219	19	22	32	41	96	19	51	193	55	4910
East Honolulu	1503	428	813	762	1496	192	370	161	130	83	13	49	2	25	14	15	12	1576	31	195	19	5	10	259	557	341	9062
Kāne'ohe	1631	350	279	240	194	459	612	308	276	157	18	54	5	52	24	20	16	27	1980	685	148	8	10	71	328	130	8081
Kailua	2243	433	330	267	234	421	531	307	222	147	20	67	4	57	23	21	20	86	560	2305	42	6	14	83	360	155	8956
Ko'olau Loa	239	77	71	121	50	42	81	75	49	40	10	37	2	13	8	12	14	12	74	28	1103	47	5	24	76	59	2368
North Shore	310	119	115	115	77	68	149	116	87	85	20	73	4	75	50	155	255	19	25	26	283	708	11	44	135	64	3191
Wai'anae	759	279	269	316	192	148	331	394	217	242	135	1562	103	215	53	62	54	46	48	70	21	10	2245	93	225	150	8239
Makiki-Mānoa	2460	871	1050	793	855	466	848	348	204	99	9	27	2	99	12	13	12	84	37	50	11	24	5	510	998	659	10545
UH Mānoa	303	107	156	118	168	44	85	27	23	11	2	3	0	51	1	1	2	21	3	4	1	0	1	71	14	103	1320
Ala Moana Center	136	107	100	124	43	19	49	9	10	6	1	1	0	1	1	1	0	4	2	3	0	0	0	21	18	0	657
Total	35158	12467	13297	13462	13028	8444	15332	12454	8263	10425	5281	14071	1184	8259	3234	4794	3760	3818	3571	4675	2122	1278	3167	4490	8509	11801	226343

Table 2-13. Percent Growth in Daily Total Transit Person Trips (Production to Attraction Format)—2005 Base Year to 2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	11%	72%	47%	26%	69%	61%	49%	57%	56%	115%	290%	395%	50%	70%	305%	51%	39%	48%	56%	63%	90%	30%	-21%	61%	127%	26%	48%
Kaka'ako	153%	175%	161%	147%	230%	244%	237%	257%	252%	305%	69%	644%	0%	319%	632%	330%	207%	264%	162%	223%	726%	0%	156%	310%	252%	88%	186%
Mō'ili'ili	13%	43%	24%	4%	15%	12%	22%	14%	11%	41%	0%	225%	26%	38%	821%	35%	59%	18%	29%	-2%	64%	0%	167%	22%	19%	4%	17%
Waikīkī	-1%	23%	13%	-1%	13%	10%	15%	12%	11%	-2%	92%	387%	0%	29%	1067%	36%	40%	6%	12%	23%	-4%	-6%	34%	9%	21%	-3%	6%
Kaimukī-Wai'alae	-7%	17%	7%	-1%	13%	-6%	4%	10%	-3%	14%	306%	205%	109%	18%	573%	4%	6%	5%	-2%	5%	16%	161%	4%	5%	23%	-13%	3%
Palama-Liliha	-3%	17%	-1%	-14%	8%	13%	5%	9%	9%	15%	150%	229%	99%	26%	408%	15%	134%	-3%	19%	30%	27%	262%	-12%	1%	-28%	-18%	3%
Kalihi-Iwilei	7%	41%	16%	5%	21%	27%	24%	21%	21%	31%	58%	215%	-23%	26%	312%	57%	258%	8%	15%	36%	-31%	-38%	77%	19%	5%	3%	19%
Airport-Pearl Harbor	-3%	9%	9%	20%	19%	20%	-4%	7%	14%	45%	147%	330%	68%	33%	207%	-13%	26%	4%	-10%	2%	-5%	15%	203%	7%	27%	5%	12%
Salt Lake-Āliamanu	-11%	20%	-7%	-21%	-8%	2%	-9%	-1%	-3%	14%	304%	367%	0%	11%	246%	-16%	-1%	-3%	1%	3%	55%	2%	-23%	-19%	12%	-31%	0%
Pearl City-'Aiea	-15%	-4%	-16%	-18%	-12%	-17%	-13%	-5%	-12%	18%	132%	259%	24%	18%	272%	4%	-6%	-9%	-3%	-9%	-8%	41%	13%	-8%	18%	-29%	6%
'Ewa	62%	99%	51%	82%	48%	24%	41%	35%	16%	40%	114%	658%	283%	52%	489%	69%	99%	22%	92%	73%	94%	87%	111%	34%	-12%	1%	111%
Kapolei	168%	147%	197%	258%	132%	69%	154%	205%	111%	148%	470%	745%	288%	166%	1436%	169%	300%	209%	210%	106%	153%	193%	102%	91%	19%	384%	308%
Makakilo	9%	32%	13%	7%	22%	-3%	13%	27%	16%	38%	566%	564%	303%	133%	321%	65%	220%	1%	2%	55%	-11%	200%	133%	-16%	-38%	-13%	110%
Waipahu-Waikele	9%	41%	19%	34%	24%	-3%	-6%	-4%	-11%	11%	174%	215%	118%	20%	118%	5%	10%	57%	25%	-19%	32%	56%	-41%	40%	0%	-10%	31%
Waiawa	291%	464%	371%	349%	574%	237%	308%	265%	279%	329%	942%	1403%	3607%	244%	1963%	224%	330%	1137%	468%	673%	1008%	200%	191%	361%	276%	301%	368%
Mililani	-4%	11%	2%	-6%	-1%	-8%	-7%	-19%	-14%	30%	126%	352%	168%	33%	283%	9%	8%	15%	-25%	-4%	-12%	-2%	-10%	-23%	-22%	-39%	13%
Wahiawa	0%	18%	5%	1%	6%	-14%	-10%	-19%	-20%	2%	100%	270%	141%	12%	148%	-8%	11%	-19%	39%	-21%	15%	2%	139%	24%	-20%	-30%	4%
East Honolulu	3%	27%	7%	2%	8%	17%	15%	21%	20%	63%	215%	1543%	0%	39%	1315%	3%	28%	20%	19%	33%	34%	354%	148%	9%	18%	-4%	12%
Kāne'ohe	-6%	-1%	-13%	-15%	5%	-5%	-3%	-3%	-4%	19%	778%	319%	425%	30%	509%	46%	32%	-1%	11%	8%	12%	-2%	28%	-17%	1%	-31%	1%
Kailua	-2%	4%	-11%	-13%	6%	1%	8%	13%	-1%	17%	153%	643%	46%	25%	473%	12%	189%	14%	1%	11%	16%	201%	5%	2%	-9%	-23%	3%
Ko'olau Loa	10%	18%	1%	19%	5%	17%	11%	25%	17%	80%	0%	1756%	0%	12%	722%	10%	40%	46%	8%	16%	19%	66%	-29%	8%	18%	5%	20%
North Shore	16%	31%	25%	20%	9%	12%	21%	4%	23%	35%	305%	817%	-17%	50%	287%	-1%	23%	35%	15%	17%	39%	14%	19%	14%	-9%	-9%	21%
Wai'anae	-16%	-4%	-18%	-14%	-13%	-1%	-19%	-9%	-18%	21%	254%	376%	151%	43%	231%	40%	58%	-4%	-21%	-24%	-10%	-18%	13%	-12%	-48%	-41%	14%
Makiki-Mānoa	-5%	28%	10%	-9%	16%	1%	8%	15%	7%	8%	191%	167%	114%	20%	147%	121%	31%	19%	6%	32%	13%	41%	130%	16%	114%	-9%	10%
UH Mānoa	-4%	28%	7%	-8%	11%	-5%	15%	18%	-3%	-11%	101%	0%	0%	46%	-66%	0%	-42%	13%	217%	26%	0%	0%	0%	2%	-10%	-7%	4%
Ala Moana Center	-12%	16%	1%	-14%	5%	1%	-2%	-29%	-4%	-2%	0%	0%	-90%	8%	0%	-28%	-61%	-12%	-40%	-48%	0%	0%	-56%	0%	-16%	0%	-5%
Total	6%	31%	17%	14%	19%	17%	16%	13%	8%	33%	176%	523%	236%	44%	328%	19%	24%	16%	12%	15%	22%	14%	24%	18%	17%	-1%	25%

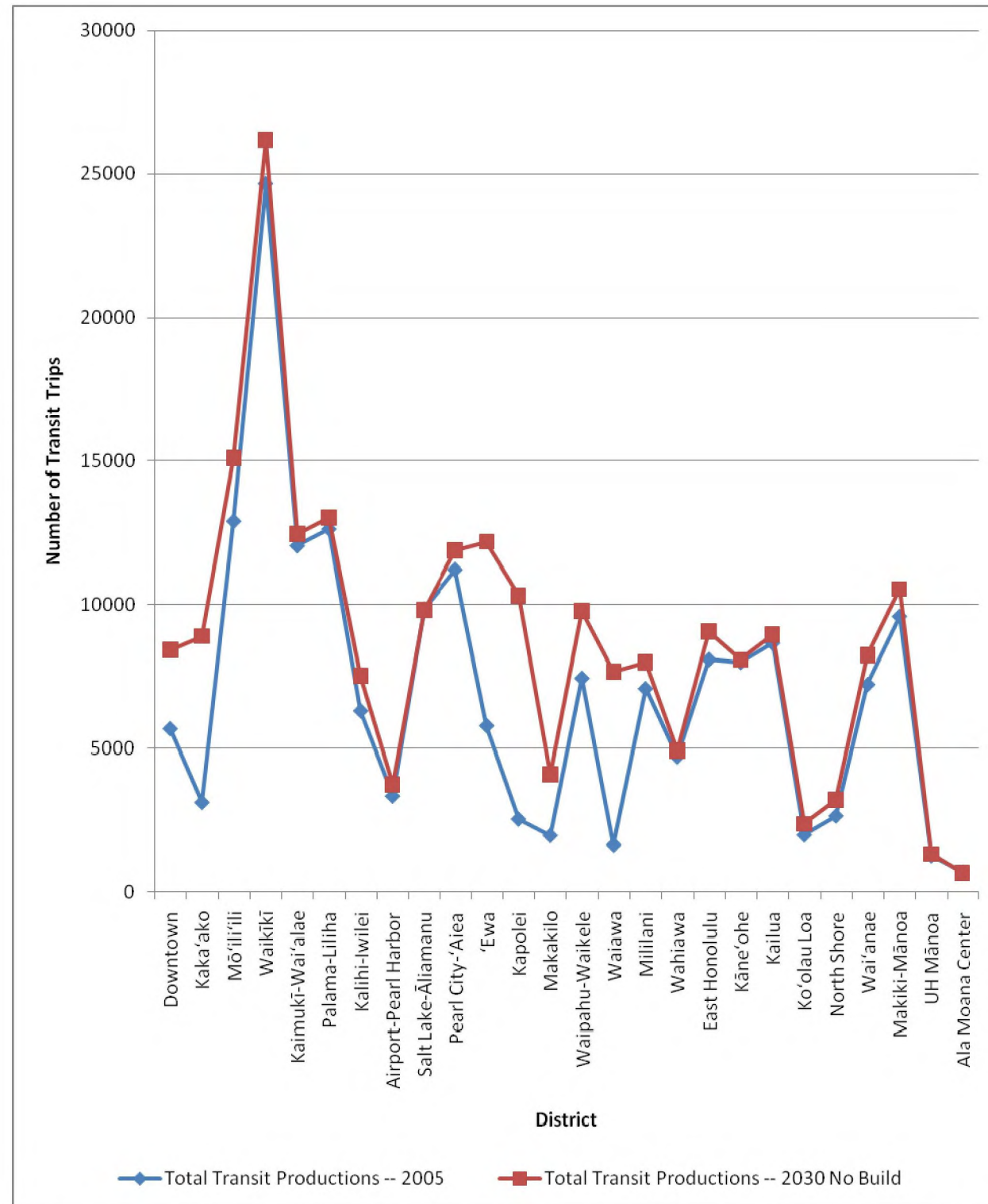


Figure 2-5. Comparison of 2005 vs. 2030 No Build Transit Trips Produced from Districts

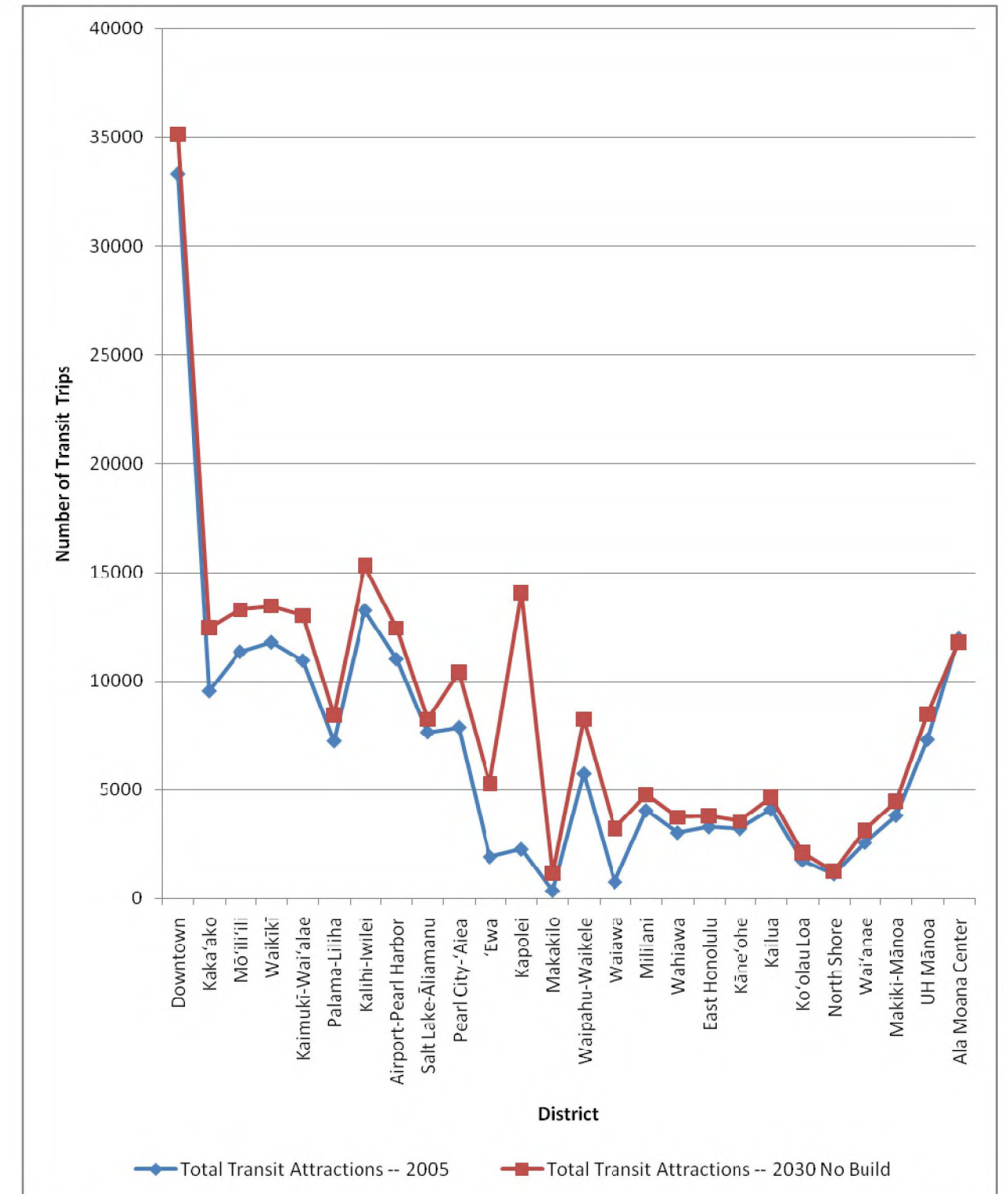


Figure 2-6. Comparison of 2005 vs. 2030 No Build Transit Trips Attracted to Districts

Table 2-14 shows a comparison between the estimated 2005 transit trips and estimated 2030 No Build transit trips for select key markets. The number of home-based-work transit trips to Downtown increased by only 4 percent while the same type of transit trips increased 36 percent to Kaka’ako. This is reflective of the fact that the percentage of employment in the Kaka’ako district increased by 38 percent in 2030 from 2005. Home-based work transit trips increased significantly from the ‘Ewa and Kapolei areas (136 and 311 percent, respectively) as these areas are expected to double in population between 2005 and 2030. Overall transit trips are expected to increase by 25 percent under the 2030 No Build Alternative compared to 2005. This is relatively similar to the 22 percent increase in population and 21 percent increase in employment from 2005 to 2030.

Table 2-14. 2005 Base Year vs. 2030 No Build Alternative Transit Trips in Key Markets

Transit Trips in Key Transit Markets	2005 Estimated	2030 No Build Estimated	% Difference
Home-based-work to Downtown	17,448	18,214	4%
Visitors from Waikīkī	14,150	14,462	2%
Home-based-other to Downtown	6,435	6,428	0%
Home-based-work to Waikīkī	5,498	6,173	12%
Home-based-work to Kalihi	4,816	5,819	21%
Home-based-school to UH Mānoa	4,606	5,605	22%
Home-based-work to Kaka’ako	3,921	5,314	36%
Home-based-work to Mō’ili’ili	4,442	5,131	16%
Home-based-work from ‘Ewa	1,687	3,985	136%
Home-based-work from Kapolei	716	2,939	311%
Home-based-work from Waipahu	2,110	2,806	33%
Home-based-work from Mililani	2,275	2,680	18%
Subtotal	68,103	79,556	17%
Other transit trips	112,844	146,787	30%
Total Transit Trips	180,947	226,343	25%

Table 2-15 shows the comparison of estimated transit trips between 2005 versus 2030 No Build by mode. The estimated residential walk access and drive access transit trips for the 2030 No Build Alternative were over 26 percent higher than the 2005. The estimated visitor walk access transit trips for 2030 No Build were just over 12 percent higher than 2005. The estimated air passenger walk access transit trips increased by over 75 percent in the 2030 No Build Alternative compared to 2005.

Table 2-15. 2005 Estimated vs. 2030 No Build Estimated Transit Trips by Mode

Type	2005 Estimated	2030 No Build Estimated	% Difference
Resident walk access transit trips	150,579	190,135	26.27%
Resident drive access transit trips	12,097	15,293	26.42%
Visitor walk access trips	17,592	19,723	12.12%
Air passenger walk access trips	679	1,191	75.41%
Total	180,947	226,342	25.09%

Figure 2-16 shows that there are 28 percent more local bus boardings in the 2030 No Build Alternative compared to 2005. There is a 21-percent decrease in express bus boardings in the 2030 No Build compared to 2005. The reason is current route improvement practices were used where increases in levels of service were provided on restructured routes but not peak express routes. This is because these are inefficient premium services, but not offered with a corresponding premium passenger fare, as is typical with most mainland peak express services. It is more cost effective to increase service frequency on parallel services where they exist.”⁵ Overall, there are 27 percent more total boardings in the 2030 No Build Alternative compared to 2005.

Table 2-16. 2005 Estimated vs. 2030 No Build Estimated Boardings by Route Type

Route type	2005 Estimated	2030 No Build Estimated	% Difference
Local Bus	241,387	308,705	28%
Express Bus	6,819	5,365	-21%
Ferry	0	132	n/a
Total	248,206	314,202	27%

2.2.3 Mode Choice Aggregate Summary

Table 2-17 shows the mode choice results for the 2030 No Build model run. 75.3 percent of all trips were made by private vehicles (single, 2, and 3+ occupants), while 5.7 percent of all trips were made by transit (express, local, park-and-ride, or kiss-and-ride). 14.9 percent of the trips were made with the auxiliary mode (walk and bike), while the remaining (4.1 percent) were made by taxi, shuttle, or tour bus. The journey-to-work/home-based work trip purpose shows that 12.5 percent of the trips are made by transit. Home-based college also shows a high percentage of trips made by transit (21.7 percent). These purposes show a much higher percentage of trips on transit compared to the overall percentage of just 6 percent. Overall, the mode share percentage results are almost identical to the 2005 estimated results.

⁵ Honolulu High Capacity Transit Corridor Project, “Travel Demand Forecasting Model No Build and Build Alternatives Ridership Comparisons,” Deliverable 6.02.01.02.05, January 30, 2008.

Table 2-17. 2030 No Build Alternative Mode Choice Summary Results by Trip Purpose

Mode	Purpose													Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	Visitor	Ground Access Air Passenger	
Single-occupant vehicle	381397	75408	127192	26860	109961	3077	35228	9051	83945	259325	111976	160093	27480	1410994
	58.8%	37.2%	65.6%	32.6%	53.2%	25.8%	51.3%	3.1%	29.2%	27.1%	22.2%	37.2%	26.5%	35.4%
Double-occupant vehicle	99977	68347	33883	31152	28363	1819	7608	71383	92303	291514	175015	0	0	901364
	15.4%	33.7%	17.5%	37.8%	13.7%	15.2%	11.1%	24.8%	32.1%	30.4%	34.7%	0.0%	0.0%	22.6%
Three-or-more occupant vehicle	24191	41229	9640	14911	11235	463	2229	114248	68193	242561	162106	0	0	691007
	3.7%	20.3%	5.0%	18.1%	5.4%	3.9%	3.2%	39.7%	23.7%	25.3%	32.1%	0.0%	0.0%	17.3%
Walk to express transit	3562	300	258	439	0	0	159	182	0	0	0	0	0	4900
	0.5%	0.1%	0.1%	0.5%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Walk to local bus transit	68752	5525	9552	6096	5358	5317	13505	18441	11421	36280	4988	19723	1191	206149
	10.6%	2.7%	4.9%	7.4%	2.6%	44.5%	19.7%	6.4%	4.0%	3.8%	1.0%	4.6%	1.1%	5.2%
Park-and-ride transit	1961	8	0	0	0	0	352	302	7	13	0	0	0	2643
	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Kiss-and-ride transit	7355	311	0	8	6	5	902	1253	888	1917	5	0	0	12650
	1.1%	0.2%	0.0%	0.0%	0.0%	0.0%	1.3%	0.4%	0.3%	0.2%	0.0%	0.0%	0.0%	0.3%
Auxiliary walk	49604	9688	12388	3001	49868	1247	4453	63733	28297	113992	48449	163613	0	548333
	7.6%	4.8%	6.4%	3.6%	24.1%	10.4%	6.5%	22.1%	9.8%	11.9%	9.6%	38.0%	0.0%	13.7%
Auxiliary bike	12022	1854	858	31	2067	13	4240	9418	2299	12781	2511	0	0	48095
	1.9%	0.9%	0.4%	0.0%	1.0%	0.1%	6.2%	3.3%	0.8%	1.3%	0.5%	0.0%	0.0%	1.2%
Taxi	0	0	0	0	0	0	0	0	0	0	0	9670	16433	26103
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%	15.8%	0.7%
Shuttle/tour bus	0	0	0	0	0	0	0	0	0	0	0	77506	58770	136276
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.0%	56.6%	3.4%
Total	648821	202671	193772	82499	206859	11941	68676	288011	287352	958382	505050	430605	103874	3988513

2.2.4 Comparison of 2005 and 2030 No Build District Level Transit Mode Shares

Table 2-18, Table 2-19, and Table 2-20 display the district-to-district transit mode shares for 2005, 2030 No Build, and the difference between 2030 No Build and 2005. There is a slight increase in transit trips coming out of Kaka’ako, and Waiawa in the 2030 No Build Alternative. These two areas are those expected to increase in population by almost fourfold. There is also a slight increase in transit trips to the Kapolei and Makakilo districts as employment is expected to increase almost threefold in the future. Overall, transit mode share remains relatively stable between 2005 and the 2030 No Build Alternative, except in places that are expected to grow.

Figure 2-7 shows graphically that Kaka’ako and Waiawa have the greatest increases in transit mode shares from those areas (production), while Kapolei and Makakilo have the greatest increases in transit mode shares to those areas (attraction). The Ala Moana Center, Downtown, and Kaka’ako districts have slightly noticeable drops in transit share, which is the result of more shopping and other personal trips to the Kapolei area.

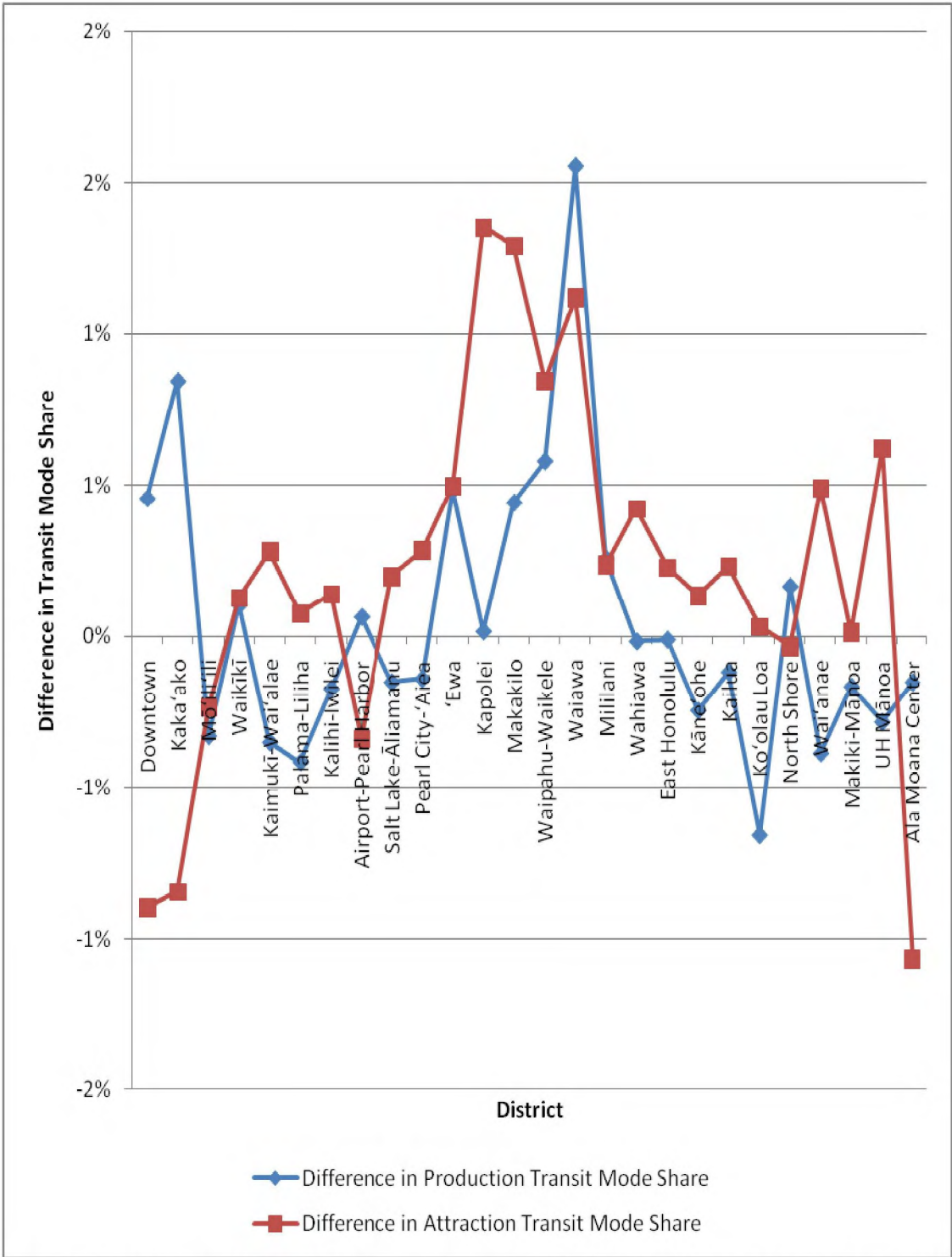


Figure 2-7. Difference in Transit Mode Shares between 2030 No Build Alternative and 2005 Base Year

Table 2-18. 2005 Base Year Estimated District-to-District Transit Mode Share

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'i	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	2%	4%	10%	13%	10%	6%	7%	11%	11%	7%	3%	3%	3%	9%	4%	5%	4%	6%	8%	6%	6%	2%	3%	7%	12%	21%	6%
Kaka'ako	7%	1%	4%	10%	10%	7%	10%	9%	7%	7%	6%	4%	0%	6%	7%	2%	3%	5%	8%	4%	2%	0%	3%	4%	13%	7%	6%
Mō'ili'i	20%	7%	2%	6%	11%	12%	15%	7%	12%	9%	0%	7%	6%	11%	3%	5%	5%	8%	11%	8%	2%	5%	2%	4%	8%	5%	8%
Waikīkī	15%	14%	8%	1%	9%	17%	9%	3%	13%	5%	4%	4%	0%	70%	2%	11%	17%	6%	19%	41%	2%	3%	10%	6%	11%	15%	6%
Kaimukī-Wai'alae	18%	10%	8%	8%	3%	7%	8%	4%	5%	6%	2%	4%	2%	5%	3%	4%	3%	6%	5%	7%	5%	1%	2%	6%	6%	17%	7%
Palama-Liliha	14%	9%	9%	11%	7%	3%	6%	7%	6%	7%	4%	6%	4%	12%	4%	6%	2%	6%	6%	4%	8%	1%	3%	5%	14%	16%	8%
Kalihi-Iwilei	9%	9%	10%	10%	8%	4%	2%	7%	6%	6%	3%	5%	4%	8%	5%	3%	1%	9%	5%	4%	6%	3%	1%	6%	13%	22%	6%
Airport-Pearl Harbor	11%	7%	5%	5%	16%	10%	6%	2%	3%	5%	2%	1%	2%	6%	4%	3%	1%	2%	3%	1%	2%	2%	0%	2%	9%	12%	4%
Salt Lake-Āliamanu	16%	20%	8%	7%	7%	6%	6%	4%	3%	6%	2%	2%	0%	6%	3%	4%	3%	3%	4%	2%	3%	2%	3%	5%	14%	16%	6%
Pearl City-'Aiea	14%	7%	7%	6%	5%	5%	6%	6%	4%	3%	5%	4%	4%	6%	4%	5%	4%	4%	4%	2%	4%	2%	3%	4%	12%	12%	5%
'Ewa	14%	8%	8%	8%	6%	6%	5%	4%	3%	4%	3%	5%	5%	5%	2%	3%	2%	5%	3%	3%	3%	2%	3%	6%	10%	14%	5%
Kapolei	11%	9%	6%	3%	5%	8%	5%	3%	3%	3%	5%	2%	5%	4%	1%	3%	2%	2%	3%	3%	1%	1%	7%	4%	12%	5%	4%
Makakilo	21%	11%	11%	12%	8%	9%	8%	4%	4%	4%	4%	4%	1%	3%	3%	3%	1%	7%	7%	3%	5%	1%	6%	10%	13%	19%	6%
Waipahu-Waikele	16%	8%	9%	8%	6%	6%	6%	4%	4%	5%	6%	5%	3%	3%	5%	5%	4%	4%	3%	4%	4%	2%	6%	5%	12%	14%	5%
Waiawa	15%	7%	8%	7%	4%	6%	5%	4%	3%	5%	5%	4%	1%	5%	1%	6%	5%	2%	3%	2%	2%	6%	5%	6%	11%	11%	5%
Mililani	12%	8%	9%	8%	6%	6%	6%	4%	3%	4%	4%	3%	2%	5%	4%	3%	4%	4%	4%	3%	5%	4%	4%	7%	11%	15%	5%
Wahiawa	13%	10%	10%	9%	7%	8%	8%	5%	5%	6%	4%	3%	2%	6%	6%	5%	2%	6%	3%	4%	5%	5%	2%	7%	13%	17%	5%
East Honolulu	14%	6%	7%	7%	6%	5%	6%	3%	4%	4%	3%	1%	0%	4%	1%	5%	3%	3%	4%	5%	4%	0%	2%	5%	8%	10%	6%
Kāne'ohe	19%	9%	9%	8%	7%	6%	6%	4%	4%	4%	1%	3%	1%	4%	2%	3%	2%	4%	3%	4%	11%	4%	3%	5%	12%	13%	5%
Kailua	17%	10%	10%	9%	7%	7%	8%	5%	5%	5%	3%	2%	3%	5%	2%	3%	1%	4%	5%	2%	6%	1%	3%	5%	14%	14%	5%
Ko'olau Loa	16%	14%	11%	3%	6%	9%	8%	3%	6%	4%	0%	1%	0%	5%	2%	4%	3%	2%	9%	4%	4%	3%	4%	5%	10%	6%	5%
North Shore	17%	12%	10%	8%	8%	9%	10%	6%	5%	5%	2%	2%	7%	5%	4%	6%	4%	4%	6%	3%	6%	3%	3%	8%	11%	20%	5%
Wai'anae	24%	15%	15%	11%	10%	11%	14%	7%	7%	8%	4%	4%	5%	7%	6%	5%	4%	6%	7%	5%	3%	3%	4%	11%	14%	23%	7%
Makiki-Mānoa	15%	6%	5%	9%	9%	7%	10%	8%	7%	9%	5%	7%	5%	25%	7%	4%	6%	6%	8%	4%	10%	21%	2%	2%	7%	10%	8%
UH Mānoa	15%	8%	5%	7%	5%	7%	8%	5%	5%	6%	3%	0%	0%	33%	8%	0%	4%	5%	1%	2%	0%	0%	0%	4%	0%	18%	5%
Ala Moana Center	9%	4%	2%	6%	5%	5%	8%	6%	4%	5%	0%	0%	13%	2%	0%	3%	3%	3%	4%	4%	0%	0%	3%	3%	5%	0%	3%
Total	13%	8%	6%	4%	6%	6%	6%	4%	4%	4%	3%	3%	3%	5%	4%	4%	3%	4%	3%	3%	4%	3%	4%	5%	9%	12%	6%

Table 2-19. 2030 No Build Alternative District-to-District Transit Mode Share

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	2%	5%	11%	14%	13%	7%	6%	11%	13%	11%	6%	6%	3%	12%	8%	7%	5%	8%	12%	8%	9%	2%	2%	7%	19%	20%	6%
Kaka'ako	7%	2%	5%	12%	15%	10%	13%	10%	13%	12%	4%	7%	2%	11%	10%	6%	4%	9%	10%	7%	7%	4%	7%	6%	18%	6%	6%
Mō'ili'ili	19%	7%	2%	5%	11%	11%	15%	6%	12%	10%	5%	7%	5%	12%	10%	6%	7%	9%	12%	7%	4%	5%	3%	4%	8%	5%	7%
Waikīkī	15%	14%	8%	1%	10%	18%	10%	3%	14%	5%	5%	8%	3%	74%	8%	15%	22%	6%	20%	47%	2%	3%	13%	6%	12%	15%	6%
Kaimukī-Wai'alae	17%	9%	8%	8%	3%	6%	8%	4%	5%	5%	3%	4%	2%	5%	6%	3%	3%	6%	5%	7%	6%	2%	2%	6%	7%	17%	7%
Palama-Liliha	13%	8%	8%	10%	7%	3%	6%	7%	6%	6%	5%	7%	6%	11%	6%	5%	5%	5%	6%	5%	9%	3%	2%	5%	11%	16%	7%
Kalihi-Iwilei	8%	8%	10%	10%	8%	4%	2%	7%	7%	7%	3%	5%	2%	8%	6%	3%	3%	8%	5%	4%	3%	2%	2%	6%	14%	22%	5%
Airport-Pearl Harbor	11%	6%	5%	4%	17%	11%	6%	3%	3%	6%	2%	3%	2%	6%	5%	3%	2%	1%	3%	1%	1%	2%	1%	2%	10%	10%	4%
Salt Lake-Āliamanu	15%	21%	8%	7%	6%	5%	6%	4%	3%	6%	3%	4%	3%	6%	5%	3%	3%	3%	4%	2%	5%	2%	2%	4%	14%	16%	5%
Pearl City-'Aiea	13%	7%	6%	6%	5%	5%	6%	6%	4%	3%	5%	5%	3%	6%	6%	5%	4%	4%	4%	2%	4%	3%	3%	4%	13%	14%	5%
'Ewa	21%	12%	11%	14%	8%	8%	7%	4%	4%	4%	3%	5%	5%	6%	4%	4%	3%	6%	4%	4%	5%	2%	5%	8%	10%	19%	5%
Kapolei	9%	9%	6%	2%	3%	7%	6%	2%	4%	4%	5%	3%	6%	6%	4%	3%	3%	1%	4%	3%	1%	1%	8%	2%	8%	6%	4%
Makakilo	22%	13%	13%	12%	10%	9%	9%	4%	5%	4%	6%	6%	2%	6%	5%	4%	3%	8%	6%	4%	5%	2%	6%	10%	11%	24%	6%
Waipahu-Waikele	18%	9%	10%	11%	7%	6%	6%	4%	4%	5%	7%	6%	5%	3%	5%	6%	4%	6%	4%	3%	4%	3%	5%	7%	11%	16%	5%
Waiawa	20%	11%	12%	10%	9%	7%	8%	5%	5%	6%	7%	7%	5%	7%	4%	7%	6%	7%	5%	4%	8%	5%	6%	9%	16%	18%	7%
Mililani	13%	9%	11%	9%	8%	6%	7%	4%	3%	4%	4%	4%	3%	6%	5%	3%	5%	5%	4%	3%	6%	5%	3%	7%	13%	15%	5%
Wahiawa	16%	11%	12%	10%	9%	8%	8%	3%	5%	5%	4%	4%	3%	7%	6%	5%	3%	5%	5%	4%	7%	5%	2%	10%	15%	18%	5%
East Honolulu	14%	7%	7%	6%	6%	5%	6%	2%	4%	4%	5%	6%	3%	5%	5%	5%	4%	4%	4%	6%	3%	1%	4%	5%	9%	9%	6%
Kāne'ohe	19%	9%	8%	7%	7%	6%	6%	4%	4%	4%	5%	4%	4%	5%	5%	4%	3%	3%	3%	4%	12%	3%	4%	5%	13%	11%	5%
Kailua	18%	9%	9%	8%	7%	7%	8%	5%	5%	5%	4%	5%	3%	5%	5%	3%	3%	5%	5%	2%	6%	2%	3%	5%	14%	12%	5%
Ko'olau Loa	12%	11%	8%	2%	4%	8%	7%	1%	6%	4%	4%	6%	3%	4%	5%	4%	5%	1%	9%	4%	4%	3%	2%	3%	10%	3%	4%
North Shore	18%	12%	11%	6%	7%	9%	11%	5%	6%	6%	5%	5%	3%	7%	7%	6%	5%	4%	6%	3%	7%	3%	3%	8%	11%	13%	5%
Wai'anae	22%	15%	14%	7%	9%	11%	13%	6%	7%	9%	5%	7%	5%	8%	7%	4%	2%	5%	7%	5%	2%	1%	4%	9%	11%	12%	6%
Makiki-Mānoa	14%	6%	5%	9%	9%	6%	10%	7%	7%	7%	7%	7%	6%	24%	9%	7%	8%	6%	7%	6%	8%	24%	5%	2%	10%	11%	8%
UH Mānoa	15%	8%	5%	6%	5%	6%	8%	5%	5%	4%	3%	2%	1%	35%	2%	2%	3%	5%	3%	2%	2%	1%	2%	4%	0%	18%	5%
Ala Moana Center	8%	4%	2%	6%	5%	5%	8%	5%	5%	5%	2%	2%	1%	3%	3%	2%	1%	3%	3%	2%	1%	2%	1%	3%	5%	0%	3%
Total	12%	7%	6%	4%	7%	6%	6%	4%	4%	4%	4%	5%	4%	6%	5%	4%	4%	5%	4%	3%	4%	3%	4%	5%	10%	11%	6%

Table 2-20. Difference in District-to-District Transit Mode Share—2030 No Build Alternative vs. 2005 Base Year

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	0%	0%	1%	1%	3%	0%	0%	1%	2%	4%	3%	3%	0%	4%	3%	2%	1%	2%	3%	2%	3%	0%	-1%	1%	7%	0%	0%
Kaka'ako	0%	0%	0%	2%	4%	3%	3%	1%	5%	5%	-2%	3%	2%	5%	4%	4%	2%	4%	3%	3%	5%	4%	4%	2%	5%	-1%	1%
Mō'ili'ili	-1%	0%	0%	0%	0%	0%	0%	-1%	0%	1%	5%	1%	-1%	1%	7%	1%	3%	1%	1%	-1%	1%	0%	2%	0%	0%	0%	0%
Waikīkī	0%	0%	0%	0%	1%	1%	1%	0%	1%	0%	0%	4%	3%	4%	6%	3%	5%	0%	1%	6%	0%	0%	3%	0%	1%	0%	0%
Kaimukī-Wai'alae	-1%	0%	0%	0%	0%	-1%	0%	0%	0%	-1%	2%	1%	0%	0%	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	0%	0%
Palama-Liliha	-1%	0%	0%	-1%	0%	0%	0%	0%	0%	-1%	1%	1%	1%	-1%	3%	0%	3%	-1%	0%	1%	0%	2%	-1%	0%	-2%	1%	0%
Kalihi-Iwilei	-1%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	-1%	0%	-3%	0%	2%	0%	2%	0%	0%	0%	-3%	-1%	1%	0%	1%	0%	0%
Airport-Pearl Harbor	-1%	-1%	0%	0%	1%	1%	0%	0%	0%	1%	1%	1%	1%	0%	1%	-1%	0%	0%	0%	0%	0%	0%	1%	0%	1%	-2%	0%
Salt Lake-Āliamanu	-1%	1%	0%	-1%	0%	0%	0%	0%	0%	0%	2%	2%	3%	0%	1%	-1%	0%	0%	0%	0%	1%	0%	0%	-1%	0%	0%	0%
Pearl City-'Aiea	-1%	-1%	0%	0%	0%	-1%	0%	0%	0%	0%	0%	1%	-1%	0%	2%	0%	0%	0%	0%	0%	-1%	1%	0%	0%	1%	1%	0%
'Ewa	6%	4%	3%	5%	2%	1%	2%	0%	1%	1%	0%	1%	1%	1%	2%	1%	1%	1%	2%	1%	2%	1%	2%	2%	0%	5%	0%
Kapolei	-2%	-1%	0%	-1%	-1%	-1%	0%	-1%	1%	1%	0%	1%	1%	2%	3%	1%	1%	0%	1%	0%	0%	0%	1%	-2%	-4%	0%	0%
Makakilo	1%	2%	1%	1%	2%	1%	2%	0%	1%	1%	2%	2%	1%	3%	1%	1%	2%	1%	-1%	1%	0%	1%	0%	0%	-2%	5%	0%
Waipahu-Waikele	2%	1%	1%	2%	1%	0%	0%	0%	0%	0%	0%	1%	2%	0%	1%	1%	1%	1%	1%	-1%	0%	1%	-1%	1%	-1%	2%	1%
Waiawa	5%	4%	4%	3%	5%	1%	3%	1%	1%	1%	2%	3%	4%	2%	2%	1%	1%	5%	2%	2%	5%	0%	0%	2%	5%	7%	2%
Mililani	2%	1%	2%	1%	1%	1%	1%	-1%	0%	0%	0%	2%	1%	1%	1%	0%	0%	1%	-1%	0%	0%	1%	-1%	0%	2%	0%	0%
Wahiawa	3%	1%	2%	1%	1%	0%	0%	-2%	0%	0%	0%	2%	1%	0%	0%	-1%	0%	0%	2%	0%	1%	1%	0%	3%	2%	1%	0%
East Honolulu	0%	0%	0%	-1%	0%	0%	0%	-1%	0%	0%	1%	5%	3%	1%	4%	0%	1%	0%	0%	1%	0%	1%	2%	0%	1%	-1%	0%
Kāne'ohe	0%	-1%	-1%	-2%	0%	0%	0%	-1%	0%	0%	4%	1%	3%	0%	3%	1%	1%	0%	0%	0%	1%	-1%	1%	-1%	0%	-3%	0%
Kailua	0%	-1%	-1%	-2%	0%	0%	0%	0%	0%	0%	1%	3%	0%	1%	3%	0%	2%	0%	0%	0%	0%	1%	0%	0%	0%	-2%	0%
Ko'olau Loa	-4%	-2%	-3%	-1%	-2%	-1%	-2%	-1%	0%	1%	4%	5%	3%	0%	4%	0%	1%	0%	0%	0%	0%	0%	-1%	-2%	0%	-3%	-1%
North Shore	1%	0%	1%	-2%	0%	0%	1%	-1%	1%	0%	2%	4%	-3%	1%	2%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	-6%	0%
Wai'anae	-2%	0%	-1%	-4%	-1%	0%	-1%	-1%	0%	1%	2%	3%	0%	2%	1%	-1%	-2%	-1%	0%	0%	-1%	-2%	0%	-2%	-3%	-11%	0%
Makiki-Mānoa	-1%	0%	0%	-1%	0%	0%	0%	-1%	0%	-2%	2%	0%	2%	-1%	2%	3%	2%	0%	0%	1%	-2%	3%	3%	0%	3%	0%	0%
UH Mānoa	-1%	0%	0%	-1%	0%	-1%	0%	0%	0%	-1%	0%	2%	1%	2%	-7%	2%	-1%	0%	2%	0%	2%	1%	2%	0%	0%	0%	0%
Ala Moana Center	-1%	0%	0%	0%	0%	0%	0%	-1%	1%	0%	2%	2%	-11%	0%	3%	-1%	-1%	0%	-1%	-2%	1%	2%	-2%	0%	0%	0%	0%
Total	-1%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	-1%	0%

2.3 TSM vs. No Build Forecasts

2.3.1 Total Transit Trips Comparisons with No Build

Table 2-21 and Table 2-22 below show the district summaries for total transit trips for the TSM Alternative and the percent difference between the 2030 TSM and 2030 No Build Alternatives to show how transit improvements in the TSM as compared to the No Build have changed district-to-district trip movements.

The biggest increases in transit trips from the No Build to the TSM Alternative are in those areas that now have a park-and-ride in the TSM Alternative. The new park-and-rides in the TSM Alternative are West Kapolei, UH West O’ahu, Ka ‘Uka Boulevard, and Aloha Stadium. The areas that have a significant increase in transit trips include the Wai’anae, Kapolei, Makakilo, and ‘Ewa areas (West Kapolei, UH West O’ahu park-and-ride), Pearl City, ‘Aiea (Aloha Stadium park-and-ride), and Mililani, Wahiawa, and Waiawa areas (Ka ‘Uka Boulevard park-and-ride). Figure 2-8 and Figure 2-9 show this graphically.

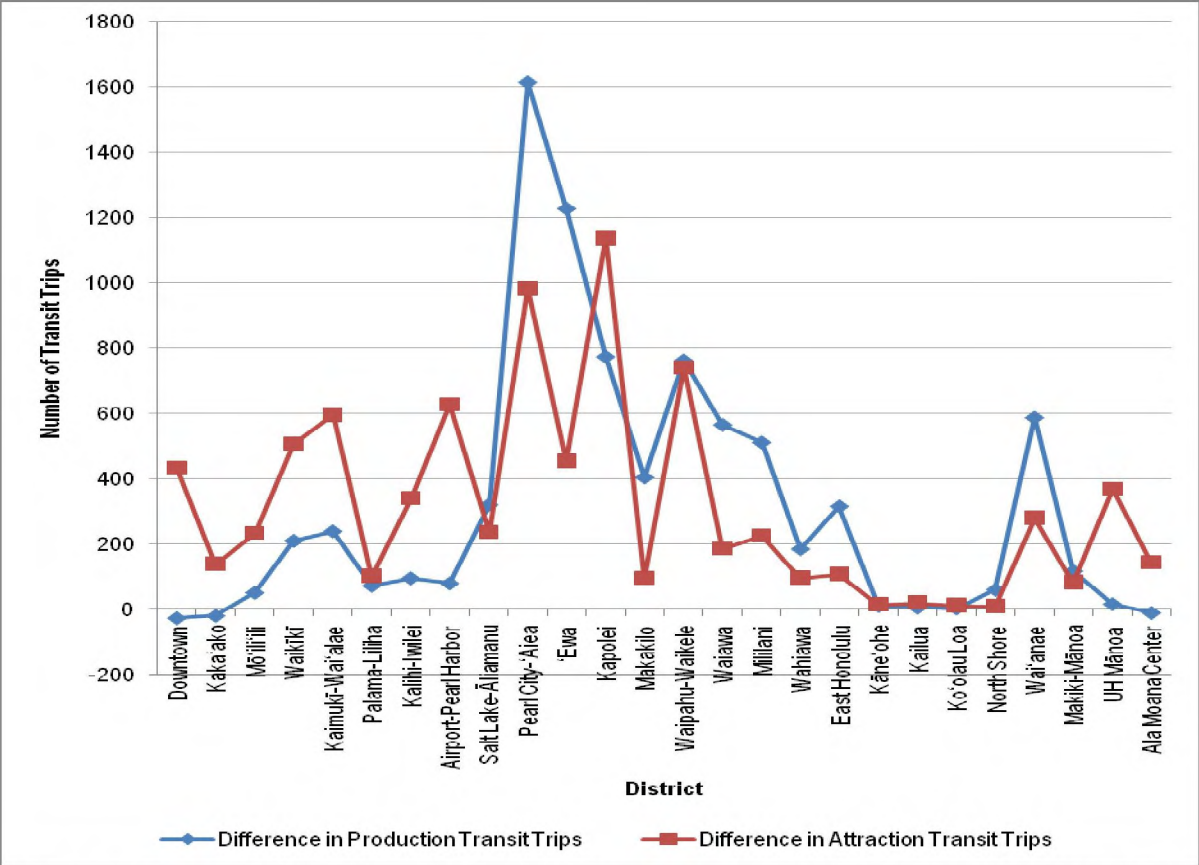


Figure 2-8. Difference in Number of Transit Trips from 2030 TSM to 2030 First Project Alternative “from” Production Districts and “to” Attraction Districts

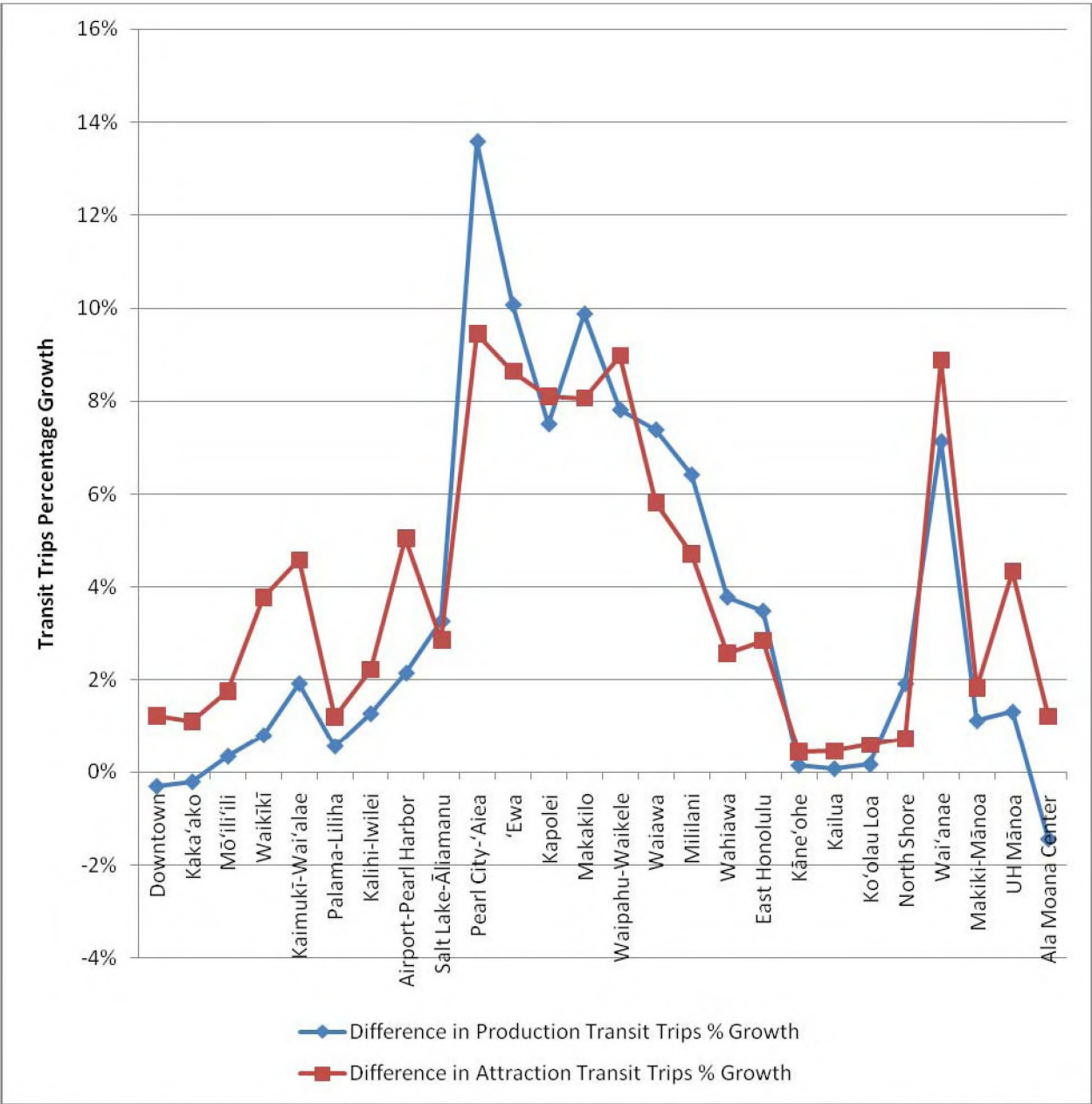


Figure 2-9. Difference in Transit Trips Percentage Growth from 2030 TSM to 2030 First Project Alternative “from” Production Districts and “to” Attraction Districts

Table 2-21. Daily Total Transit Person Trips (Production to Attraction Format)—2030 TSM Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	949	779	1001	652	526	673	1054	517	447	220	13	36	2	56	17	20	13	62	73	95	13	3	4	230	354	585	8393
Kaka'ako	1707	568	910	954	739	552	1101	376	268	140	8	32	1	39	15	13	10	72	46	57	8	3	8	306	423	520	8877
Mō'ili'ili	3888	1463	1196	1337	1782	610	1235	511	316	194	9	38	3	47	19	16	17	225	61	62	19	20	6	517	648	910	15147
Waikīkī	4230	1499	1995	1872	2986	588	1137	1984	169	400	8	35	2	703	12	33	52	861	67	447	132	185	20	814	725	5436	26393
Kaimukī-Wai'alae	2477	924	1746	1599	1947	327	609	211	160	98	9	30	2	28	14	11	8	389	25	79	12	3	3	532	703	746	12693
Palama-Liliha	3376	1022	740	438	375	1454	2233	843	763	350	14	60	4	119	27	23	17	46	125	109	18	4	4	212	291	427	13094
Kalihi-Iwilei	1493	683	503	312	248	692	1029	756	641	320	8	47	2	59	25	18	15	54	57	46	6	2	4	115	177	302	7614
Airport-Pearl Harbor	425	99	83	143	281	287	450	823	411	334	8	23	2	114	43	15	8	9	16	21	5	6	3	18	84	103	3814
Salt Lake-Āliamanu	1422	1121	284	173	180	418	1039	1609	1794	967	22	76	5	180	63	37	24	18	58	51	16	4	8	63	356	148	10138
Pearl City-'Aiea	1290	310	261	204	177	276	827	1542	1155	3707	144	441	25	1179	495	265	139	30	89	68	27	14	27	71	585	141	13490
'Ewa	1034	340	313	800	232	191	413	418	239	537	2692	3755	231	945	104	123	87	50	43	74	49	13	164	113	318	130	13410
Kapolei	653	181	201	660	155	115	288	359	141	317	1000	4646	456	489	70	75	58	45	30	41	28	13	408	77	187	392	11085
Makakilo	317	112	115	218	88	75	156	145	93	146	265	1816	239	192	31	35	26	20	19	25	17	4	141	46	116	49	4506
Waipahu-Waikele	804	207	306	809	154	144	280	370	236	1036	937	1128	102	2103	542	412	185	36	32	43	36	17	64	84	336	125	10528
Waiawa	639	166	253	522	128	99	264	342	213	933	200	540	42	1206	912	773	392	27	30	40	33	27	35	58	252	101	8229
Mililani	806	198	219	184	148	119	301	311	174	523	101	344	20	658	636	1874	1187	30	30	39	45	64	29	61	325	73	8498
Wahiawa	411	132	138	131	99	73	168	177	104	221	50	173	11	257	201	960	1225	21	23	32	41	96	22	52	220	58	5096
East Honolulu	1555	439	844	813	1534	194	383	171	127	96	14	54	3	28	15	16	12	1618	32	196	20	5	11	267	578	357	9379
Kāne'ohe	1629	348	277	237	196	456	614	309	257	178	19	59	6	55	26	22	17	28	1980	685	148	8	11	72	329	130	8093
Kailua	2240	431	328	263	236	418	527	307	205	167	22	73	5	61	24	22	21	88	560	2305	42	6	15	83	360	155	8963
Ko'olau Loa	239	76	71	119	51	42	82	75	45	43	10	39	2	14	8	12	14	12	74	28	1103	47	5	25	76	59	2372
North Shore	318	121	118	118	82	68	150	119	84	93	22	83	5	80	51	156	255	20	25	26	283	708	12	45	146	64	3252
Wai'anae	804	291	282	335	206	152	354	427	227	262	148	1649	109	238	59	71	61	51	50	72	22	11	2439	97	252	158	8826
Makiki-Mānoa	2450	878	1090	830	865	463	846	343	199	109	9	29	2	100	13	14	12	88	37	50	11	24	5	519	1005	672	10664
UH Mānoa	304	110	159	124	169	44	86	27	22	11	2	3	0	51	1	1	2	22	3	4	1	0	1	73	14	104	1338
Ala Moana Center	132	105	98	124	43	18	48	9	9	6	1	2	0	1	1	1	0	5	2	2	0	0	0	21	18	0	647
Total	35590	12607	13531	13970	13625	8546	15673	13083	8500	11410	5737	15210	1280	9001	3422	5020	3857	3927	3587	4696	2134	1287	3448	4573	8878	11945	234537

Table 2-22. Percent Growth in Daily Total Transit Person Trips (Production to Attraction Format)—2030 No Build Alternative to 2030 TSM Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	-2%	-1%	0%	-1%	1%	-1%	0%	0%	-3%	8%	7%	5%	6%	5%	2%	2%	3%	2%	0%	0%	0%	0%	10%	-2%	1%	1%	0%
Kaka'ako	-1%	0%	0%	-1%	1%	-2%	-1%	0%	-4%	8%	13%	8%	19%	3%	3%	4%	4%	4%	-2%	-2%	-2%	0%	4%	2%	1%	0%	0%
Mō'ili'ili	-1%	1%	0%	1%	1%	-1%	-1%	0%	-3%	9%	9%	5%	16%	4%	3%	4%	4%	2%	-1%	-1%	-2%	-3%	5%	3%	1%	0%	0%
Waikīkī	-1%	-1%	-1%	-1%	11%	0%	-1%	-1%	-4%	19%	7%	4%	7%	0%	2%	1%	0%	0%	-1%	0%	-2%	0%	1%	0%	0%	0%	1%
Kaimukī-Wai'alae	1%	1%	1%	3%	4%	1%	1%	2%	-3%	12%	13%	9%	16%	8%	6%	9%	6%	3%	2%	1%	1%	3%	11%	1%	1%	1%	2%
Palama-Liliha	-1%	0%	-1%	-1%	1%	6%	0%	0%	-1%	10%	10%	7%	10%	3%	4%	4%	5%	4%	-1%	0%	-1%	-2%	10%	0%	1%	0%	1%
Kalihi-Iwilei	0%	0%	0%	0%	1%	-2%	5%	1%	0%	6%	6%	6%	10%	3%	1%	3%	2%	3%	0%	0%	1%	0%	9%	0%	2%	1%	1%
Airport-Pearl Harbor	2%	2%	2%	1%	1%	1%	2%	-4%	9%	10%	4%	7%	4%	10%	8%	9%	8%	11%	3%	3%	4%	3%	6%	3%	9%	1%	2%
Salt Lake-Āliamanu	-3%	-1%	-3%	-5%	-3%	-2%	1%	21%	9%	-1%	9%	9%	11%	6%	2%	9%	7%	-1%	-7%	-7%	-7%	8%	8%	-4%	-1%	-2%	3%
Pearl City-'Aiea	14%	12%	13%	12%	17%	10%	12%	12%	9%	19%	11%	14%	20%	11%	5%	10%	8%	14%	9%	13%	13%	11%	13%	9%	19%	12%	14%
'Ewa	8%	6%	11%	10%	12%	8%	21%	9%	9%	5%	7%	13%	18%	9%	11%	11%	7%	14%	7%	7%	6%	12%	21%	7%	7%	10%	10%
Kapolei	8%	6%	9%	14%	10%	5%	13%	17%	8%	8%	11%	4%	5%	11%	14%	16%	11%	11%	6%	5%	10%	15%	5%	6%	11%	13%	8%
Makakilo	10%	8%	11%	16%	11%	7%	19%	22%	11%	13%	17%	6%	1%	19%	21%	26%	18%	13%	8%	7%	18%	26%	10%	8%	16%	13%	10%
Waipahu-Waikele	7%	6%	7%	8%	7%	4%	3%	6%	4%	4%	7%	11%	14%	9%	9%	10%	6%	9%	6%	5%	13%	12%	10%	5%	11%	8%	8%
Waiawa	12%	9%	12%	24%	12%	4%	6%	4%	4%	-3%	7%	9%	13%	13%	3%	7%	4%	9%	7%	5%	-1%	0%	8%	5%	10%	10%	7%
Mililani	7%	8%	7%	10%	10%	3%	7%	13%	3%	7%	15%	19%	25%	10%	7%	3%	2%	12%	7%	6%	0%	1%	16%	5%	12%	6%	6%
Wahiawa	5%	5%	6%	7%	7%	3%	6%	9%	2%	5%	8%	11%	15%	5%	4%	1%	1%	7%	3%	2%	0%	0%	14%	3%	14%	5%	4%
East Honolulu	3%	3%	4%	7%	3%	1%	3%	6%	-3%	15%	11%	9%	11%	11%	6%	7%	6%	3%	2%	0%	6%	18%	8%	3%	4%	5%	3%
Kāne'ohe	0%	0%	0%	-1%	1%	-1%	0%	0%	-7%	13%	7%	8%	10%	6%	5%	8%	6%	5%	0%	0%	0%	0%	7%	1%	0%	0%	0%
Kailua	0%	0%	0%	-1%	1%	-1%	-1%	0%	-7%	14%	9%	9%	8%	6%	5%	5%	6%	2%	0%	0%	0%	0%	6%	1%	0%	0%	0%
Ko'olau Loa	0%	0%	0%	-1%	2%	0%	1%	0%	-10%	9%	6%	5%	6%	6%	1%	1%	0%	3%	0%	0%	0%	0%	9%	4%	0%	0%	0%
North Shore	2%	2%	3%	2%	5%	0%	1%	2%	-3%	9%	10%	13%	12%	7%	1%	1%	0%	5%	0%	1%	0%	0%	11%	3%	8%	0%	2%
Wai'anae	6%	4%	5%	6%	7%	3%	7%	8%	4%	8%	10%	6%	6%	11%	11%	15%	14%	10%	5%	4%	6%	13%	9%	4%	12%	5%	7%
Makiki-Mānoa	0%	1%	4%	5%	1%	-1%	0%	-1%	-3%	10%	7%	8%	6%	2%	5%	4%	3%	5%	-1%	-1%	-1%	0%	5%	2%	1%	2%	1%
UH Mānoa	0%	2%	2%	5%	1%	0%	0%	1%	-4%	5%	4%	6%	0%	0%	1%	9%	2%	3%	0%	0%	0%	0%	5%	2%	5%	1%	1%
Ala Moana Center	-4%	-1%	-2%	-1%	0%	-4%	-2%	2%	-7%	10%	6%	6%	0%	18%	2%	7%	10%	3%	-7%	-6%	0%	0%	9%	2%	1%	0%	-1%
Total	1%	1%	2%	4%	5%	1%	2%	5%	3%	9%	9%	8%	8%	9%	6%	5%	3%	3%	0%	0%	1%	1%	9%	2%	4%	1%	4%

Table 2-23 shows a comparison between the estimated 2030 No Build transit trips and estimated 2030 TSM transit trips for select key markets. The number of home-based-work transit trips from the ‘Ewa, Kapolei, and Waipahu areas increased by 19, 11, and 12 percent, respectively. This is reflective of the new park-and-rides in ‘Ewa and Kapolei and increased service along Farrington Highway in Waipahu. Overall transit trips are increased by 4 percent under the 2030 TSM Alternative compared to the 2030 No Build Alternative.

Table 2-23. 2030 No Build vs. 2030 TSM Transit Trips between Key Markets

Transit Trips in Key Transit Markets	2030 No Build Estimated	2030 TSM Estimated	% Difference
Home-based-work to downtown	18,214	18,466	1%
Visitors from Waikīkī	14,462	14,739	2%
Home-based-other to Downtown	6,428	6,465	1%
Home-based-work to Waikīkī	6,173	6,461	5%
Home-based-work to Kalihi	5,819	5,954	2%
Home-based-school to UH Mānoa	5,605	5,843	4%
Home-based-work to Kaka‘ako	5,314	5,389	1%
Home-based-work to Mō‘ili‘ili	5,131	5,260	3%
Home-based-work from ‘Ewa	3,985	4,659	17%
Home-based-work from Kapolei	2,939	3,236	10%
Home-based-work from Waipahu	2,806	3,093	10%
Home-based-work from Mililani	2,680	2,845	6%
Subtotal	79,556	82,411	4%
Other transit trips	146,787	152,126	4%
Total Transit Trips	226,343	234,537	4%

Table 2-24 shows the comparison of estimated transit trips between 2030 No Build vs. 2030 TSM by mode. The estimated residential walk access transit trips for the 2030 TSM Alternative was only 2.86 percent higher than the 2030 No Build Alternative. The estimated residential drive access transit trips for 2030 TSM was about 14 percent higher than the 2030 No Build Alternative. Again, this is due in part to the new designated park-and-rides in the TSM Alternative. The estimated visitor transit trips was increased by a little over 2.6 percent in the 2030 TSM Alternative compared to the 2030 No Build Alternative. The estimated air passenger walk access transit trips increased by just below 6 percent in the 2030 TSM Alternative compared to No Build.

Table 2-24. 2030 No Build Estimated vs. 2030 TSM Estimated Transit Trips by Mode

Type	2030 No Build Estimated	2030 TSM Estimated	% Difference
Resident walk access transit trips	190,135	195,580	2.86%
Resident drive access transit trips	15,293	17,453	14.12%
Visitor walk access trips	19,723	20,244	2.64%
Air passenger walk access trips	1,191	1,259	5.71%
Total	226,342	234,536	3.62%

Table 2-25 shows that there are 7 percent more local bus boardings in the 2030 TSM Alternative compared to the 2030 No Build Alternative. There is a 12.1-percent decrease in express bus boardings in the 2030 TSM compared to 2030 No Build. The decrease in express bus boardings was because “these are inefficient premium services, but not offered with a corresponding premium passenger fare as is typical with most mainland peak express services. It is more cost effective to increase service frequency on parallel services where they exist.”⁶ Overall, there are 7.6 percent more total boardings in the 2030 TSM Alternative compared to the 2030 No Build Alternative.

Table 2-25. 2030 No Build Estimated vs. 2030 TSM Boardings by Route Type

Route type	2030 No Build Estimated	2030 TSM Estimated	% Difference
Local bus	308,705	330,415	7.03%
Express bus	5,365	4,844	-12.10%
Ferry	132	113	-10.50%
Total	314,202	335,372	7.60%

2.3.2 Mode Choice Aggregate Summary

Table 2-26 shows the mode choice results for the 2030 TSM Alternative model run. 75.1 percent of all trips are made by private vehicles (single, 2, and 3+ occupants), while 5.9 percent of all trips are made by transit (express, local, park-and-ride, or kiss-and-ride). 14.9 percent of the trips are made with the auxiliary mode (walk and bike), while the remaining (4.1 percent) are made by taxi, shuttle, or tour bus. The journey to work—Home-based-work trip purpose shows that 13.2 percent of the trips are made by transit. Home-based college also shows a high percentage of trips made by transit (22.5 percent). These purposes show a much higher percentage of trips on transit compared to the overall percentage of just 5.9 percent. Overall, the mode share percentage results are almost identical to the 2030 No Build Alternative.

⁶ Honolulu High Capacity Transit Corridor Project, “Travel Demand Forecasting Model No Build and Build Alternatives Ridership Comparisons,” Deliverable 6.02.01.02.05, January 30, 2008.

Table 2-26. 2030 TSM Alternative Mode Choice Summary Results by Trip Purpose

Mode	Purpose													Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	Visitor	Ground Access Air Passenger	
Single-occupant vehicle	379016	75349	126933	26766	109837	3059	34783	9026	83885	259100	111944	159786	27442	1406926
	58.4%	37.2%	65.5%	32.4%	53.1%	25.6%	50.7%	3.1%	29.2%	27.0%	22.2%	37.1%	26.4%	35.3%
Double-occupant vehicle	98934	68241	33808	31045	28328	1787	7508	71163	92185	291116	174950	0	0	899064
	15.2%	33.7%	17.4%	37.6%	13.7%	15.0%	10.9%	24.7%	32.1%	30.4%	34.6%	0.0%	0.0%	22.5%
Three-or-more occupant vehicle	23927	41162	9615	14861	11222	455	2194	113877	68106	242224	162057	0	0	689700
	3.7%	20.3%	5.0%	18.0%	5.4%	3.8%	3.2%	39.5%	23.7%	25.3%	32.1%	0.0%	0.0%	17.3%
Walk to express transit	3575	308	264	464	0	0	153	186	0	0	0	0	0	4950
	0.6%	0.2%	0.1%	0.6%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Walk to local bus transit	70893	5726	9907	6322	5530	5372	13902	19023	11675	37152	5128	20244	1259	212133
	10.9%	2.8%	5.1%	7.7%	2.7%	45.0%	20.2%	6.6%	4.1%	3.9%	1.0%	4.7%	1.2%	5.3%
Park-and-ride transit	1944	7	0	0	0	0	335	260	7	11	0	0	0	2564
	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Kiss-and-ride transit	9030	349	0	8	6	6	1115	1381	932	2057	5	0	0	14889
	1.4%	0.2%	0.0%	0.0%	0.0%	0.1%	1.6%	0.5%	0.3%	0.2%	0.0%	0.0%	0.0%	0.4%
Auxiliary walk	49569	9688	12386	2999	49869	1250	4453	63713	28281	113987	48445	163612	0	548252
	7.6%	4.8%	6.4%	3.6%	24.1%	10.5%	6.5%	22.1%	9.8%	11.9%	9.6%	38.0%	0.0%	13.7%
Auxiliary bike	11928	1841	858	31	2066	13	4230	9386	2283	12719	2511	0	0	47867
	1.8%	0.9%	0.4%	0.0%	1.0%	0.1%	6.2%	3.3%	0.8%	1.3%	0.5%	0.0%	0.0%	1.2%
Taxi	0	0	0	0	0	0	0	0	0	0	0	9636	16415	26051
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%	15.8%	0.7%
Shuttle/tour bus	0	0	0	0	0	0	0	0	0	0	0	77319	58758	136077
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.0%	56.6%	3.4%
Total	648816	202671	193772	82496	206858	11941	68673	288015	287354	958366	505041	430597	103874	3988474

2.3.3 Comparison of 2030 No Build and 2030 TSM District Level Transit Mode Shares

Table 2-27 and Table 2-28 display the district-to-district transit mode share for the 2030 TSM Alternative and the difference between 2030 TSM and 2030 No Build. The TSM Alternative's overall transit mode share is 6 percent, which is the same as the 2030 No Build's overall transit mode share. There are very slight increases in the TSM transit mode shares from the Leeward end of the island as these areas get additional park-and-ride lots. However, the increase in transit mode share is very small as seen by the scale on the vertical axis on Figure 2-10.

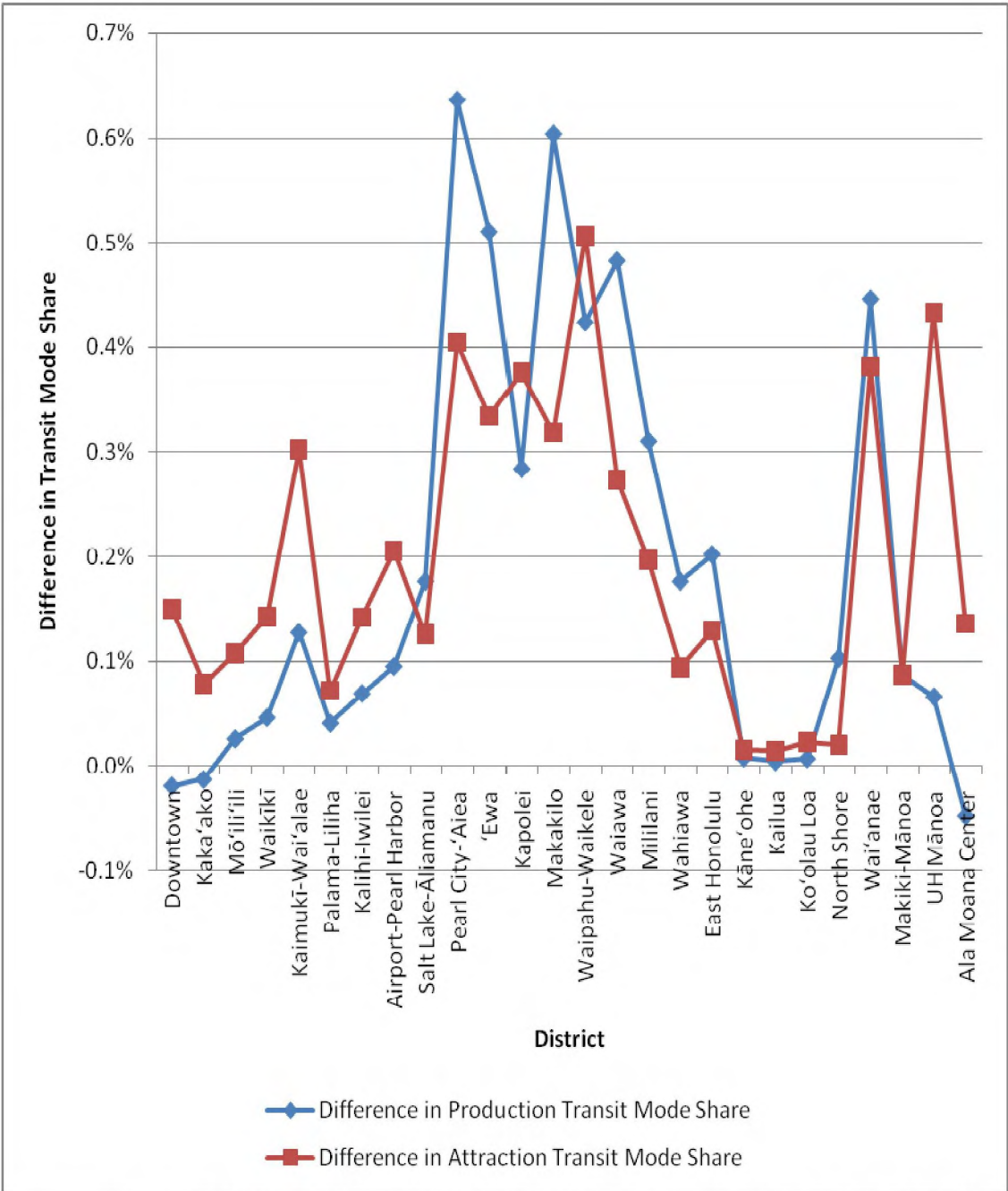


Figure 2-10. Difference in Transit Mode Shares between 2030 TSM Alternative and 2030 No Build Alternative

Table 2-27. 2030 TSM Alternative District-to-District Transit Mode Share

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'i	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	2%	5%	11%	14%	13%	7%	6%	11%	12%	12%	6%	6%	3%	13%	8%	7%	5%	8%	12%	8%	9%	2%	3%	7%	20%	20%	6%
Kaka'ako	7%	2%	5%	12%	15%	10%	12%	10%	12%	12%	5%	7%	2%	12%	11%	6%	4%	10%	10%	7%	7%	4%	7%	7%	18%	6%	6%
Mō'ili'i	19%	7%	2%	5%	11%	11%	15%	6%	12%	11%	6%	8%	5%	12%	11%	7%	8%	9%	12%	7%	4%	5%	4%	4%	8%	5%	7%
Waikīkī	15%	14%	8%	1%	11%	18%	10%	3%	13%	6%	5%	8%	3%	74%	8%	15%	22%	6%	19%	47%	2%	3%	13%	6%	12%	15%	6%
Kaimukī-Wai'alae	18%	9%	8%	8%	3%	6%	8%	4%	5%	6%	4%	5%	3%	6%	6%	4%	3%	6%	5%	8%	6%	2%	2%	6%	7%	17%	7%
Palama-Liliha	13%	8%	8%	10%	7%	4%	6%	7%	6%	7%	5%	8%	7%	12%	7%	6%	5%	5%	6%	5%	8%	3%	3%	5%	12%	17%	7%
Kalihi-Iwilei	8%	8%	10%	10%	8%	4%	2%	8%	7%	7%	3%	5%	2%	8%	6%	4%	3%	9%	5%	4%	3%	2%	2%	6%	15%	22%	5%
Airport-Pearl Harbor	11%	6%	5%	4%	17%	11%	6%	2%	3%	6%	2%	3%	2%	7%	5%	3%	2%	2%	3%	1%	1%	2%	2%	2%	11%	10%	4%
Salt Lake-Āliamanu	15%	21%	7%	6%	6%	5%	6%	5%	3%	6%	4%	4%	3%	6%	5%	4%	3%	3%	4%	2%	4%	2%	2%	4%	14%	16%	6%
Pearl City-'Aiea	15%	8%	7%	7%	6%	5%	7%	6%	5%	3%	6%	6%	4%	7%	6%	6%	5%	4%	5%	3%	4%	3%	4%	5%	16%	15%	5%
'Ewa	22%	13%	12%	15%	9%	8%	8%	4%	4%	5%	3%	6%	6%	6%	5%	4%	3%	7%	5%	4%	5%	3%	6%	9%	11%	21%	6%
Kapolei	9%	9%	7%	3%	3%	7%	6%	2%	5%	4%	5%	4%	6%	7%	5%	4%	3%	1%	4%	3%	1%	1%	9%	3%	9%	6%	4%
Makakilo	24%	14%	14%	14%	11%	10%	11%	5%	6%	5%	7%	7%	2%	7%	6%	5%	4%	9%	7%	5%	6%	3%	7%	11%	13%	27%	7%
Waipahu-Waikele	19%	10%	11%	11%	8%	6%	7%	5%	4%	5%	7%	6%	6%	4%	6%	6%	4%	6%	4%	3%	4%	3%	6%	7%	12%	17%	6%
Waiawa	22%	12%	14%	12%	10%	7%	9%	6%	5%	6%	7%	7%	6%	7%	4%	7%	6%	8%	5%	5%	7%	5%	6%	9%	18%	20%	7%
Mililani	14%	10%	12%	10%	8%	6%	7%	4%	3%	5%	4%	5%	3%	6%	6%	3%	5%	6%	4%	3%	6%	5%	3%	7%	15%	16%	5%
Wahiawa	17%	12%	13%	11%	10%	8%	9%	4%	5%	6%	4%	5%	4%	7%	6%	5%	3%	6%	5%	4%	7%	5%	2%	10%	17%	19%	5%
East Honolulu	14%	7%	7%	7%	6%	5%	6%	2%	4%	5%	5%	7%	3%	5%	6%	5%	4%	4%	4%	6%	3%	1%	5%	5%	9%	10%	6%
Kāne'ohe	19%	9%	8%	7%	7%	6%	6%	4%	4%	4%	5%	5%	5%	5%	5%	4%	3%	4%	3%	4%	12%	3%	4%	5%	13%	11%	5%
Kailua	18%	9%	9%	7%	8%	7%	8%	5%	5%	5%	4%	5%	3%	6%	5%	4%	4%	5%	5%	2%	6%	2%	3%	5%	14%	12%	5%
Ko'olau Loa	12%	11%	8%	2%	4%	8%	7%	1%	5%	5%	5%	6%	3%	5%	5%	4%	5%	1%	9%	4%	4%	3%	3%	3%	10%	3%	4%
North Shore	19%	12%	12%	6%	8%	9%	11%	5%	6%	6%	5%	6%	4%	7%	7%	6%	5%	5%	6%	3%	7%	3%	3%	8%	12%	13%	5%
Wai'anae	23%	16%	15%	8%	10%	12%	14%	7%	7%	10%	6%	7%	5%	9%	7%	4%	2%	6%	7%	5%	2%	2%	4%	9%	12%	13%	7%
Makiki-Mānoa	14%	6%	5%	9%	9%	6%	10%	7%	7%	8%	8%	8%	7%	24%	10%	8%	8%	7%	7%	6%	8%	24%	5%	3%	10%	11%	8%
UH Mānoa	15%	9%	5%	7%	5%	6%	8%	5%	5%	4%	3%	2%	1%	35%	2%	2%	3%	5%	3%	2%	2%	1%	2%	4%	0%	18%	5%
Ala Moana Center	8%	4%	2%	6%	5%	5%	7%	5%	4%	5%	2%	2%	1%	3%	3%	2%	1%	3%	3%	2%	1%	2%	2%	3%	5%	0%	3%
Total	12%	7%	6%	4%	7%	6%	7%	4%	5%	5%	4%	5%	4%	6%	5%	4%	4%	5%	4%	3%	4%	3%	5%	5%	10%	11%	6%

Table 2-28. Difference in District-to-District Transit Mode Share—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	0.0%	0.0%	0.0%	-0.1%	0.1%	-0.1%	0.0%	0.0%	-0.4%	0.9%	0.4%	0.3%	0.2%	0.7%	0.2%	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.2%	-0.1%	0.2%	0.2%	0.0%
Kaka'ako	-0.1%	0.0%	0.0%	-0.1%	0.1%	-0.2%	-0.1%	0.0%	-0.5%	0.9%	0.5%	0.5%	0.3%	0.4%	0.3%	0.2%	0.2%	0.4%	-0.2%	-0.1%	-0.1%	0.0%	0.3%	0.1%	0.2%	0.0%	0.0%
Mō'ili'ili	-0.1%	0.1%	0.0%	0.1%	0.1%	-0.1%	-0.1%	0.0%	-0.4%	0.9%	0.5%	0.4%	0.7%	0.5%	0.3%	0.3%	0.3%	0.2%	-0.1%	-0.1%	-0.1%	-0.2%	0.2%	0.1%	0.1%	0.0%	0.0%
Waikīkī	-0.2%	-0.1%	-0.1%	0.0%	1.1%	-0.1%	-0.1%	0.0%	-0.5%	0.9%	0.4%	0.3%	0.2%	0.2%	0.2%	0.1%	0.1%	0.0%	-0.2%	-0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Kaimukī-Wai'alae	0.2%	0.1%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	-0.1%	0.6%	0.4%	0.4%	0.4%	0.4%	0.3%	0.3%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%
Palama-Liliha	-0.1%	0.0%	0.0%	-0.1%	0.1%	0.2%	0.0%	0.0%	-0.1%	0.6%	0.5%	0.5%	0.6%	0.3%	0.3%	0.2%	0.2%	0.2%	0.0%	0.0%	-0.1%	-0.1%	0.2%	0.0%	0.2%	0.0%	0.0%
Kalihi-Iwilei	0.0%	0.0%	0.0%	0.0%	0.1%	-0.1%	0.1%	0.1%	0.0%	0.4%	0.2%	0.3%	0.1%	0.2%	0.1%	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.3%	0.3%	0.1%
Airport-Pearl Harbor	0.2%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	-0.1%	0.3%	0.5%	0.1%	0.2%	0.1%	0.6%	0.4%	0.3%	0.2%	0.2%	0.1%	0.0%	0.0%	0.1%	0.1%	0.1%	0.9%	0.1%	0.1%
Salt Lake-Āliamanu	-0.5%	-0.3%	-0.3%	-0.3%	-0.2%	-0.1%	0.0%	0.8%	0.2%	-0.1%	0.3%	0.3%	0.3%	0.4%	0.1%	0.3%	0.2%	0.0%	-0.3%	-0.2%	-0.3%	0.1%	0.2%	-0.2%	-0.2%	-0.4%	0.2%
Pearl City-'Aiea	1.9%	0.8%	0.8%	0.7%	0.9%	0.5%	0.7%	0.7%	0.4%	0.5%	0.6%	0.7%	0.7%	0.7%	0.3%	0.5%	0.3%	0.5%	0.4%	0.3%	0.5%	0.3%	0.5%	0.4%	2.5%	1.6%	0.6%
'Ewa	1.7%	0.7%	1.2%	1.3%	1.0%	0.6%	1.5%	0.3%	0.4%	0.2%	0.2%	0.7%	0.9%	0.5%	0.5%	0.4%	0.2%	0.8%	0.3%	0.3%	0.3%	0.3%	1.1%	0.6%	0.7%	1.9%	0.5%
Kapolei	0.7%	0.5%	0.6%	0.3%	0.3%	0.4%	0.7%	0.3%	0.4%	0.3%	0.5%	0.1%	0.3%	0.7%	0.6%	0.5%	0.3%	0.1%	0.2%	0.2%	0.1%	0.1%	0.4%	0.2%	0.9%	0.7%	0.3%
Makakilo	2.1%	1.1%	1.4%	2.0%	1.1%	0.6%	1.7%	1.0%	0.6%	0.6%	1.0%	0.4%	0.0%	1.2%	1.0%	1.0%	0.6%	1.0%	0.5%	0.3%	0.8%	0.5%	0.6%	0.8%	1.8%	3.0%	0.6%
Waipahu-Waikele	1.2%	0.5%	0.7%	0.9%	0.5%	0.3%	0.2%	0.2%	0.1%	0.2%	0.5%	0.6%	0.7%	0.3%	0.5%	0.6%	0.3%	0.5%	0.2%	0.2%	0.5%	0.4%	0.5%	0.3%	1.2%	1.2%	0.4%
Waiawa	2.3%	1.0%	1.4%	2.3%	1.1%	0.3%	0.5%	0.2%	0.2%	-0.2%	0.5%	0.6%	0.7%	0.9%	0.1%	0.4%	0.2%	0.7%	0.4%	0.2%	-0.1%	0.0%	0.5%	0.4%	1.6%	1.8%	0.5%
Mililani	1.0%	0.7%	0.7%	0.9%	0.8%	0.2%	0.5%	0.5%	0.1%	0.3%	0.6%	0.8%	0.7%	0.5%	0.4%	0.1%	0.1%	0.6%	0.3%	0.2%	0.0%	0.0%	0.4%	0.3%	1.6%	0.9%	0.3%
Wahiawa	0.8%	0.5%	0.7%	0.7%	0.7%	0.2%	0.5%	0.3%	0.1%	0.3%	0.3%	0.5%	0.5%	0.4%	0.2%	0.1%	0.0%	0.4%	0.1%	0.1%	0.0%	0.0%	0.3%	0.3%	2.0%	1.0%	0.2%
East Honolulu	0.5%	0.2%	0.2%	0.4%	0.1%	0.0%	0.2%	0.1%	-0.1%	0.7%	0.5%	0.5%	0.3%	0.5%	0.3%	0.3%	0.2%	0.1%	0.1%	0.0%	0.2%	0.2%	0.3%	0.1%	0.3%	0.4%	0.2%
Kāne'ohe	0.0%	0.0%	0.0%	-0.1%	0.1%	0.0%	0.0%	0.0%	-0.3%	0.5%	0.3%	0.4%	0.4%	0.3%	0.3%	0.3%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%
Kailua	0.0%	0.0%	0.0%	-0.1%	0.1%	-0.1%	-0.1%	0.0%	-0.4%	0.6%	0.4%	0.4%	0.2%	0.3%	0.2%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
Ko'olau Loa	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	-0.6%	0.4%	0.3%	0.3%	0.2%	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%
North Shore	0.4%	0.2%	0.3%	0.1%	0.4%	0.0%	0.1%	0.1%	-0.2%	0.5%	0.5%	0.7%	0.4%	0.5%	0.1%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.3%	0.2%	0.9%	0.0%	0.1%
Wai'anae	1.3%	0.6%	0.7%	0.4%	0.7%	0.3%	0.9%	0.5%	0.3%	0.7%	0.6%	0.4%	0.3%	0.9%	0.7%	0.5%	0.3%	0.5%	0.3%	0.2%	0.1%	0.2%	0.3%	0.4%	1.3%	0.6%	0.4%
Makiki-Mānoa	-0.1%	0.1%	0.2%	0.4%	0.1%	0.0%	0.0%	-0.1%	-0.2%	0.7%	0.5%	0.5%	0.4%	0.4%	0.4%	0.3%	0.3%	0.3%	-0.1%	0.0%	-0.1%	0.1%	0.2%	0.0%	0.1%	0.2%	0.1%
UH Mānoa	0.0%	0.2%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	-0.2%	0.2%	0.1%	0.1%	0.0%	0.1%	0.0%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.2%	0.1%
Ala Moana Center	-0.3%	0.0%	0.0%	0.0%	0.0%	-0.2%	-0.1%	0.1%	-0.3%	0.5%	0.1%	0.1%	0.0%	0.5%	0.0%	0.1%	0.1%	0.1%	-0.2%	-0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%
Total	0.1%	0.1%	0.1%	0.1%	0.3%	0.1%	0.1%	0.2%	0.1%	0.4%	0.3%	0.4%	0.3%	0.5%	0.3%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%	0.4%	0.1%	0.2%

2.3.4 User Benefit Analysis TSM Alternative vs. No Build Alternative

Transit user benefits are the incremental cost per hour for a user. User benefits maps are used to show which areas would gain or lose utility from a project. Transit user benefits generally represent the amount of travel-time savings a transit user will experience with a given transit alternative compared to a baseline alternative. Positive user benefits result from improved speed or financial savings to travelers who would use a transit system with those improvements. For example, if transit priority measures increase transit speeds, transit users benefit from travel time savings.

Table 2-29⁷ shows that the journey-to-work/home-based-work, non-work-related home-based-other, and home-based-school (K-12) comprised over 71 percent (34.25, 23.96, and 13.22 percent, respectively) of the total user benefits (579,780 capped) between TSM and No Build. Each of the 153,313 existing riders accrue 3.07 minutes of user benefits, while each of the 10,735 new riders accrue 15.83 minutes of user benefits.

Figure 2-11⁸ shows the overall user benefits visine plot for all trip purposes combined and for all benefits from production and to attraction zones. A few of the zones show yellow, orange, and red shades. The lone central zone is yellow because, in the TSM alternative, it was faster to walk only versus take the bus (as in the No Build Alternative). The several zones near Salt Lake and Moanalua area are red and orange because for certain zone pairs a person would need to transfer in the TSM Alternative vs. the No Build Alternative.

Figure 2-12 shows that the overall user benefits for trips produced from each of the zones are occurring in the high capacity transit corridor. There is minimal benefit in Downtown as the TSM network was restructured especially in Central O'ahu to operate more efficiently consistent with the type of large scale route restructuring conducted in the primary corridor and Leeward O'ahu⁹, where as the No Build network maintained the existing route structure with only a few alterations to serve new growth areas.

Figure 2-13 shows the user benefits for trips attracted to each of the zones. This figure also shows the same trends as the production user benefits.

Figure 2-14 through Figure 2-39 show the user benefits by trip purpose from and to each of the zones. The two purposes: journey-to-work/home-based work, and non-work-related home-based-other comprise over 58 percent of the total benefits.

Table 2-30 shows the overall total user benefits in district-to-district format. Most of the benefits are being accrued along the transit corridor, like Pearl City and 'Aiea, 'Ewa, Kapolei, and Waipahu. Like the overall user benefits visine plots, the big negative benefits are shown from the Salt Lake district to mostly Downtown and the Pearl City and 'Aiea districts. This is because some trunk routes that filtered through the neighborhoods were eliminated and replaced by community circulators that connected to major trunk routes.

Table 2-31 through Table 2-43 show the district-to-district user benefits by trip purpose.

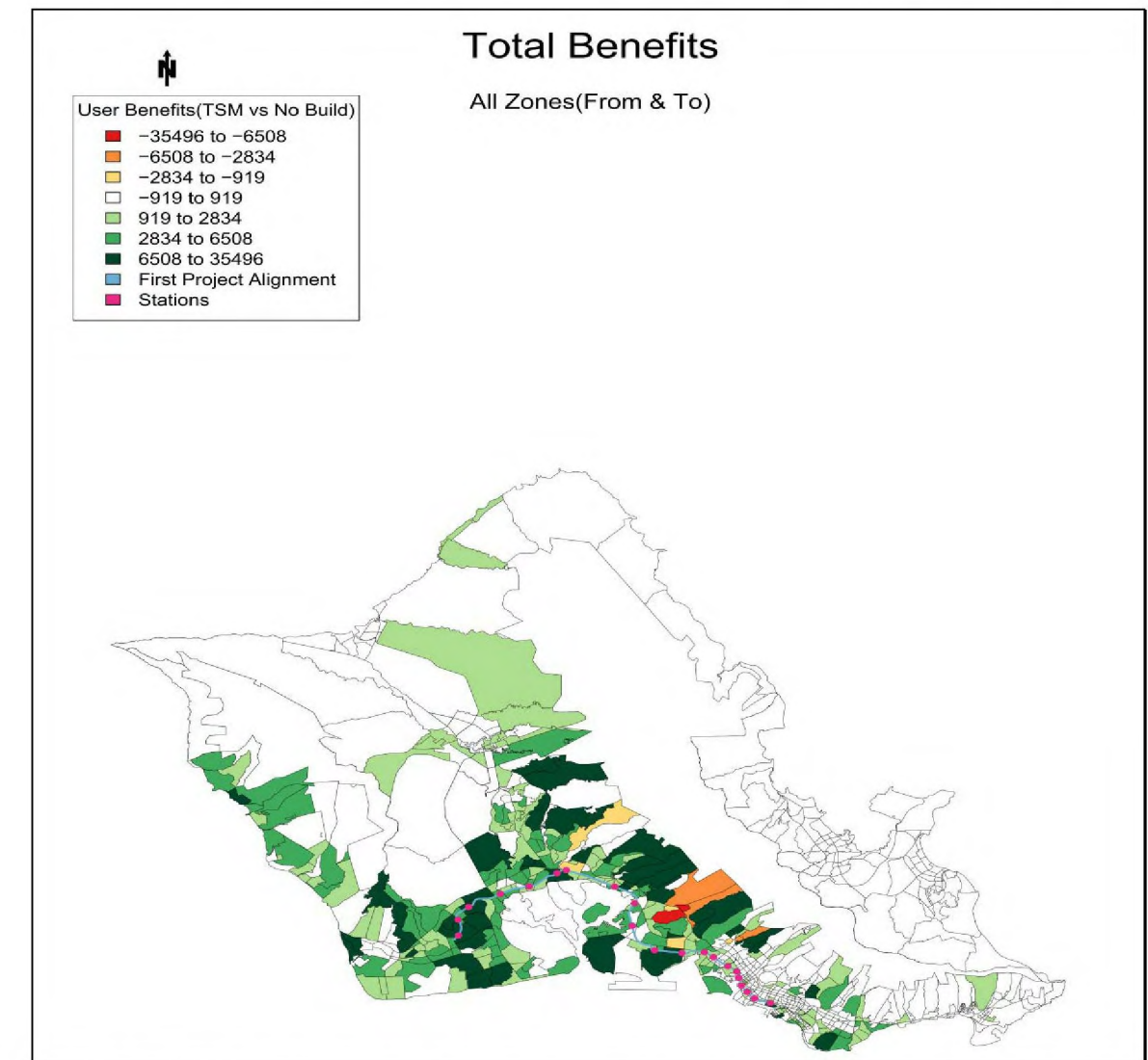


Figure 2-11. Visine Map of User Benefits (in minutes) for All Trip Purposes From and To Zones—TSM Alternative vs. No Build Alternative

⁷ Note also that the total transit trips in Table 2-29 differs from the transit trips displayed in earlier sections. This is because the visitor model has an observed fixed transit trip table that does not accrue user benefits.

⁸ The user benefits measure is presented in minutes on these maps. Areas that experience positive user benefits as a result of the alternative considered are shown in shades of green. Three shades of green are presented to illustrate significant benefits which are the top 40% of all zones with positive benefits (in dark green), medium benefits representing the next 30% of zones with positive benefits (in medium green) and small but non-trivial benefits representing the next 10% of zones with positive benefits (in light green). All remaining zones with positive benefits are shown in white. These are considered marginal or negligible benefits. Likewise, zones with negative user benefits are shown with three shades of red. The three shades of red illustrate significant negative benefits in dark red, medium negative benefits in medium red, and small but non-trivial benefits in light red. Zones with negligible or trivial disbenefits are shown in white. The breakpoints for the negative user benefits are established by using the corresponding breakpoints for the positive benefits.

⁹ Travel Demand Forecasting Model Current Year Ridership Comparisons" (deliverable 6.02.01.01.01).

Table 2-29. User Benefits Information Comparing 2030 TSM Alternative vs. 2030 No Build Alternative

Description	Journey to Work/Home-Based-Work	Journey-to-Work/Home-Based-Other	Journey-to-Work/Work-Based	Journey-to-Work/Non-Home-Based	Journey-at-Work/Work-Based	Journey-at-Work/Non-Home-Based	Non-Work-Related/Home-Based-College	Non-Work-Related/Home-Based-School (K-12)	Non-Work-Related/Home-Based-Shopping	Non-Work-Related/Home-Based-Other	Non-Work-Related/Non-Home-Based	Visitor	Ground Access Air-Passenger	Total
Total user benefits (minutes)	200,164	11,852	15,391	10,978	8,950	8,100	33,909	78,676	43,094	144,790	14,231	20,473	2,109	592,717
Capped user benefits (minutes)	198,593	11,736	15,337	10,929	8,589	7,814	33,625	76,632	41,426	138,896	13,621	20,473	2,109	579,780
Percent of total	34.25%	2.02%	2.65%	1.89%	1.48%	1.35%	5.80%	13.22%	7.15%	23.96%	2.35%	3.53%	0.36%	100.00%
Percent capped	0.78%	0.98%	0.35%	0.45%	4.03%	3.53%	0.84%	2.60%	3.87%	4.07%	4.29%	0.00%	0.00%	2.18%
No Build transit trips	81,630	6,146	9,810	6,542	5,364	5,322	14,917	20,179	12,317	38,210	4,992	13,493	1,191	220,113
TSM transit trips	85,442	6,389	10,172	6,795	5,537	5,378	15,506	20,849	12,613	39,221	5,133	14,014	1,259	228,308
New riders	3,812	243	362	253	173	56	589	670	296	1,011	141	521	68	8195
Existing Rider Statistics														
Number	62,422	4,287	6,912	4,644	3,092	3,154	7,896	14,626	7,116	24,042	2,904	11,701	517	153,313
Benefits (minutes)	170,085	9,969	12,864	8,704	7,535	8,425	25,051	58,755	33,963	108,038	11,282	16,925	-322	471,273
User benefits per existing rider	2.72	2.33	1.86	1.87	2.44	2.67	3.17	4.02	4.77	4.49	3.88	1.45	-0.62	3.07
New Rider Statistics														
Number	4,877	326	512	366	248	148	733	899	410	1,285	201	604	125	10,735
Benefits (minutes)	39,538	2,643	3,694	3,432	3,121	5,633	7,364	28,074	18,327	45,364	6,244	3,657	2,859	169,950
User benefits per new rider	8.11	8.10	7.21	9.37	12.59	38.10	10.05	31.22	44.70	35.31	31.01	6.06	22.87	15.83

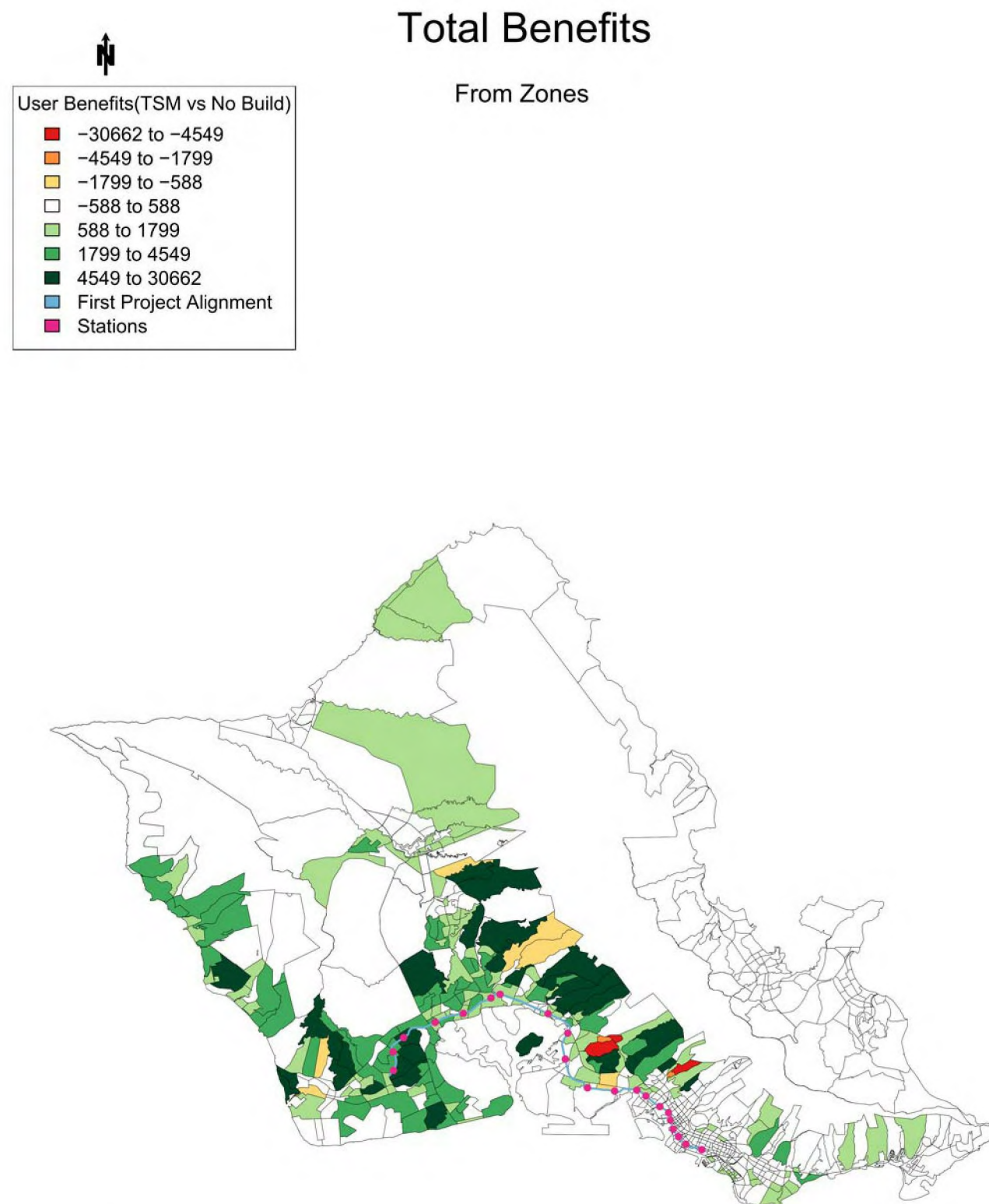


Figure 2-12. Visine Map of User Benefits (in minutes) for All Trip Purposes From Zones (Production)—TSM Alternative vs. No Build Alternative

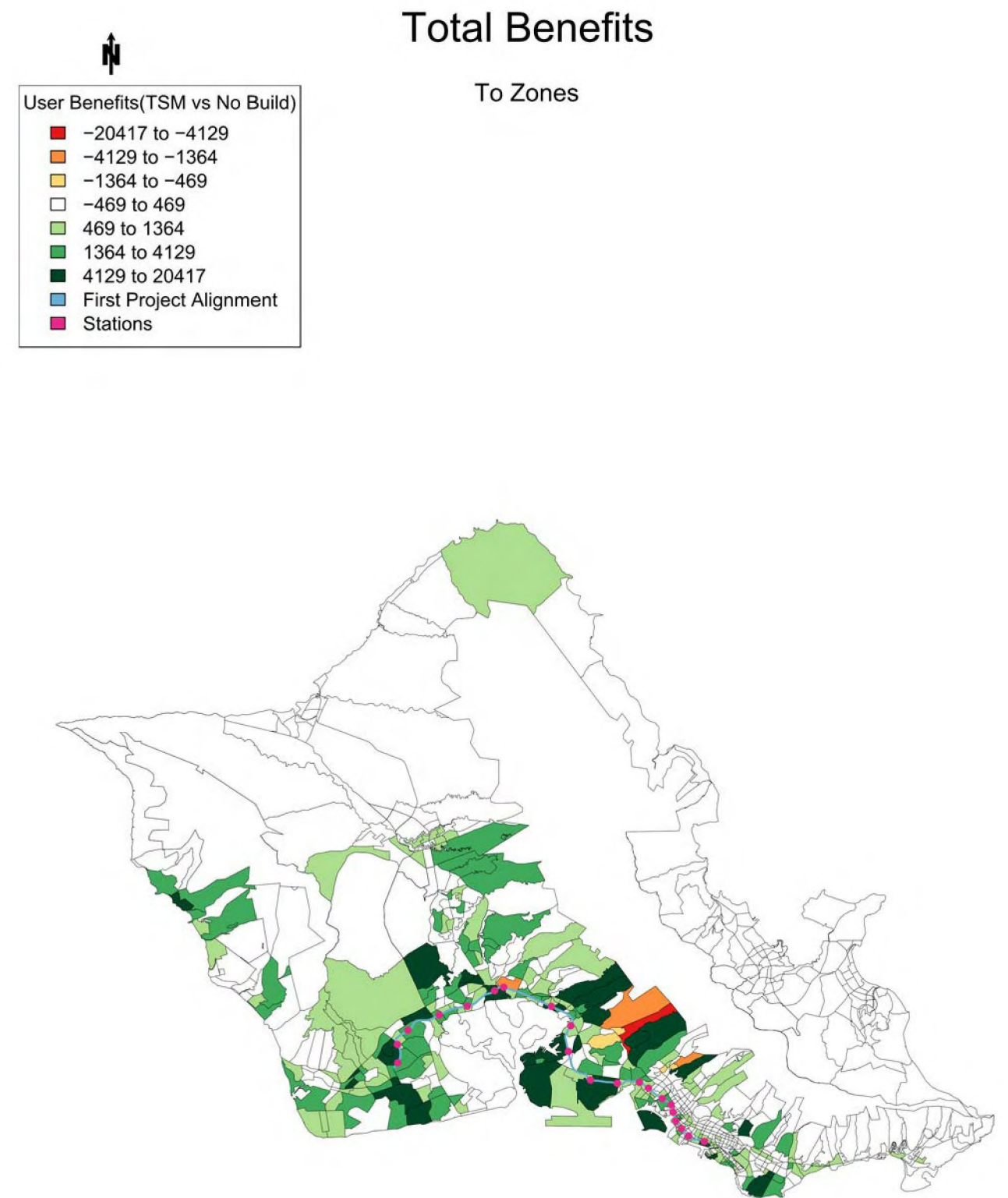


Figure 2-13. Visine Map of User Benefits (in minutes) for All Trip Purposes To Zones (Attraction)—TSM Alternative vs. No Build Alternative

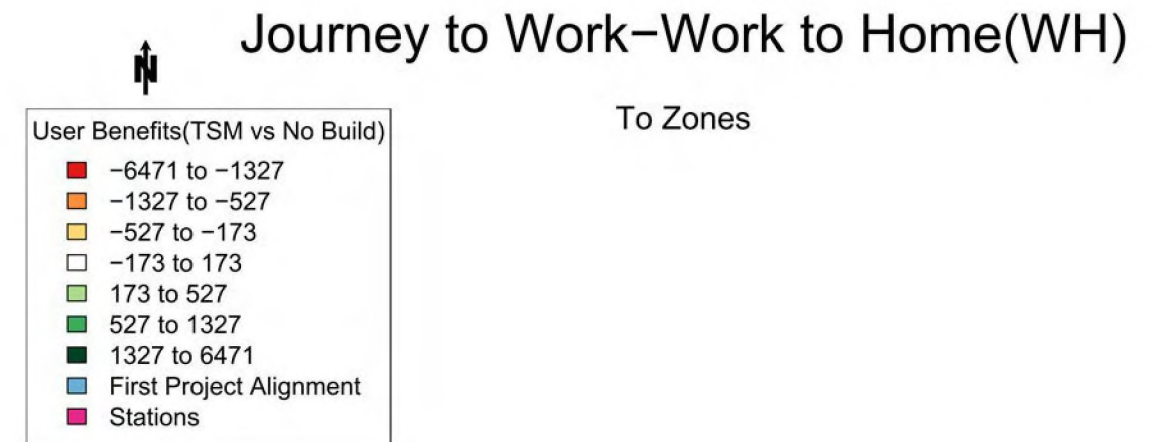
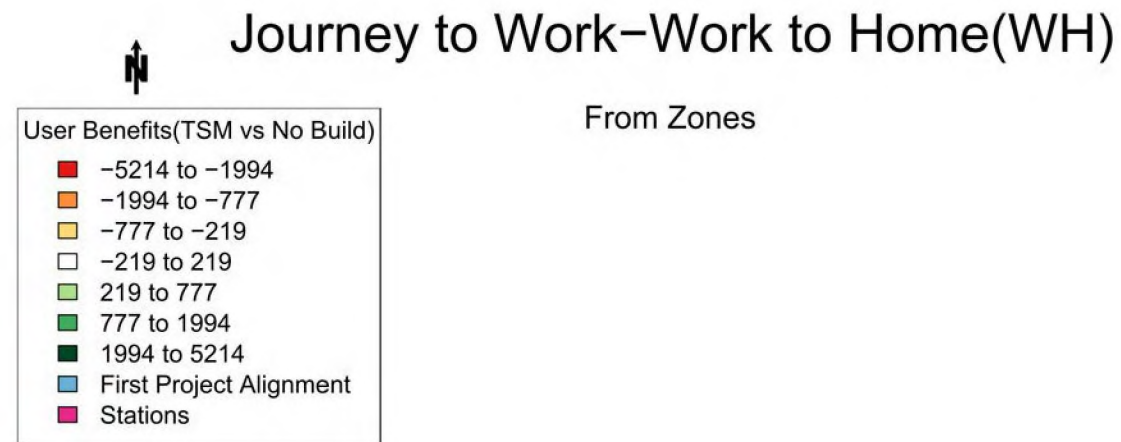


Figure 2-14. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Work From Zones—TSM Alternative vs. No Build Alternative

Figure 2-15. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Work To Zones—TSM Alternative vs. No Build Alternative

Journey to Work–Home Based Other(WO)

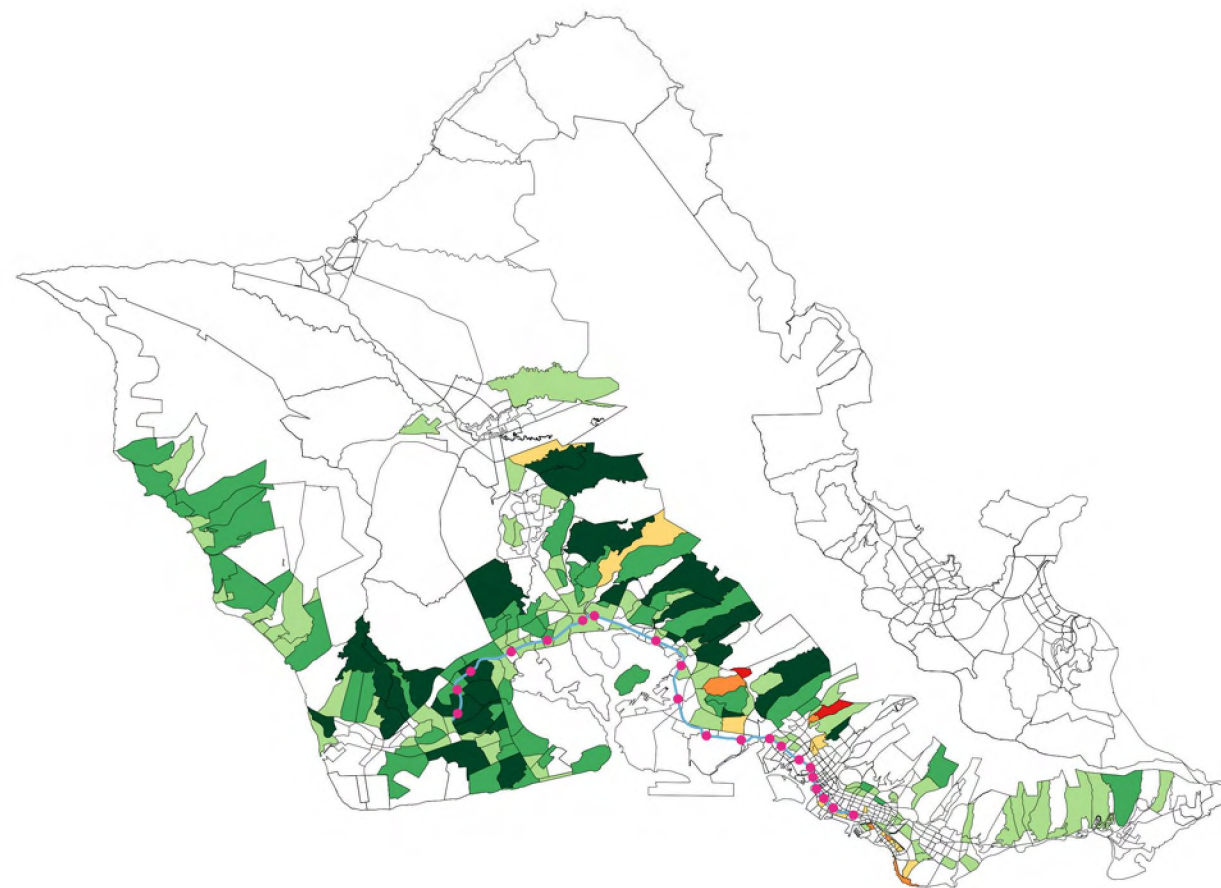
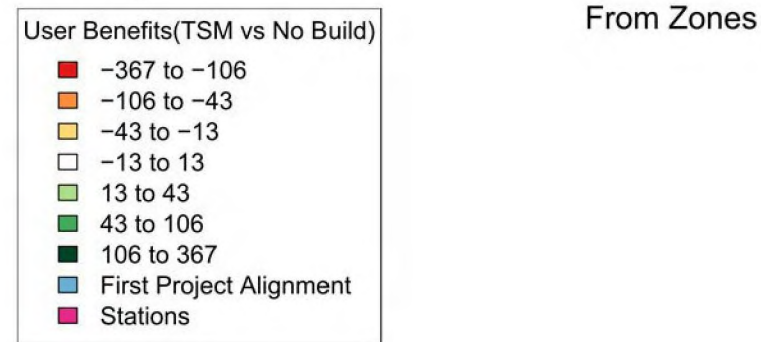


Figure 2-16. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Other From Zones—TSM Alternative vs. No Build Alternative

Journey to Work–Home Based Other(WO)

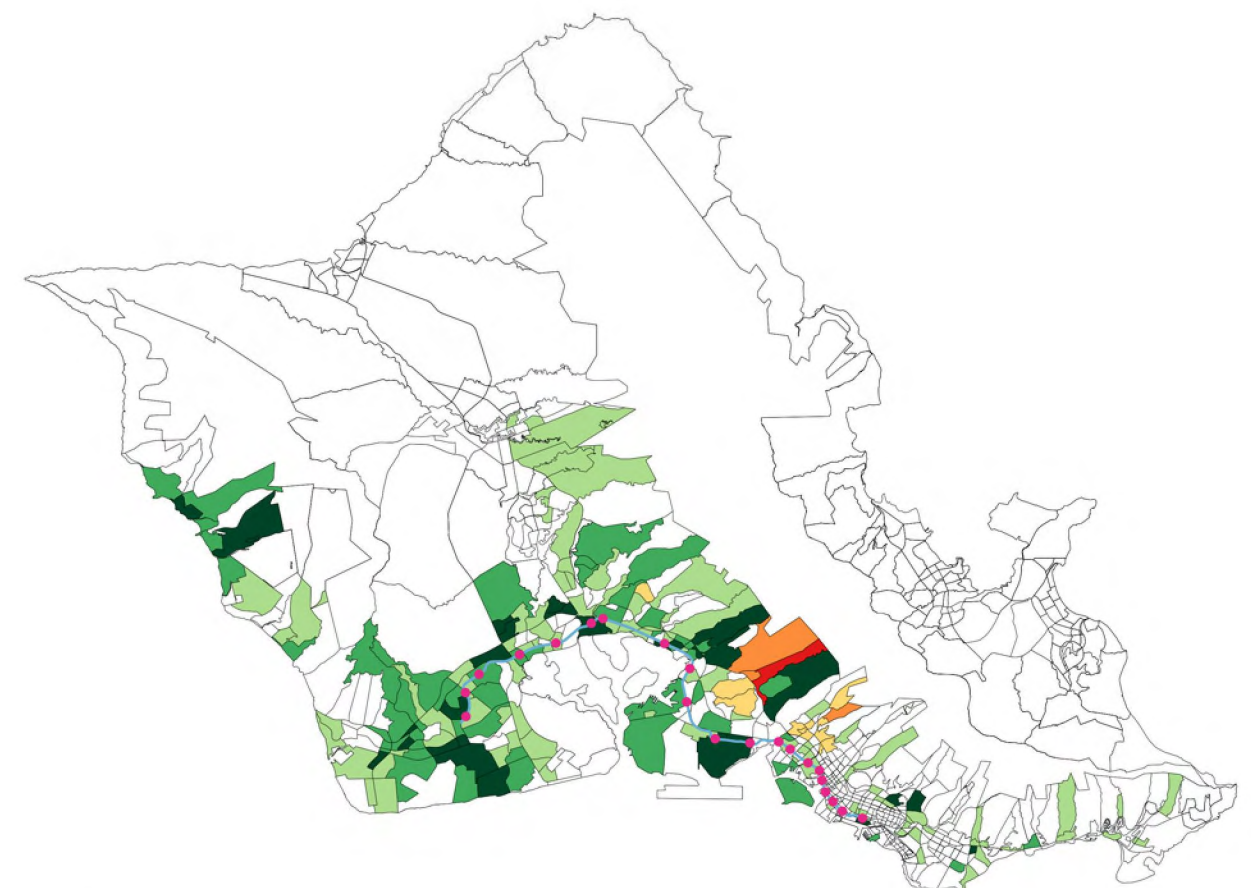
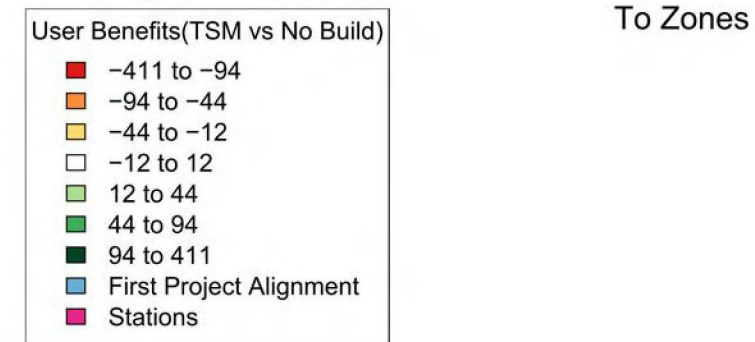


Figure 2-17. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Other To Zones—TSM Alternative vs. No Build Alternative

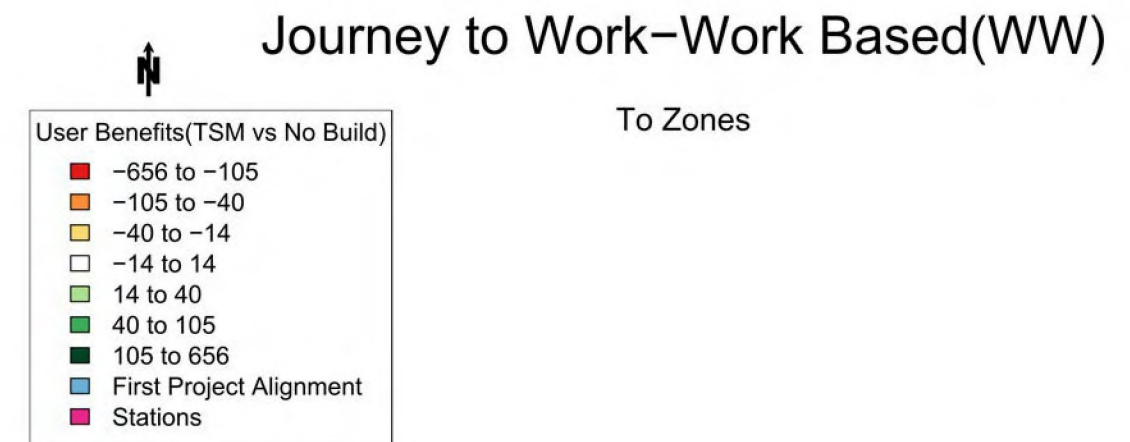
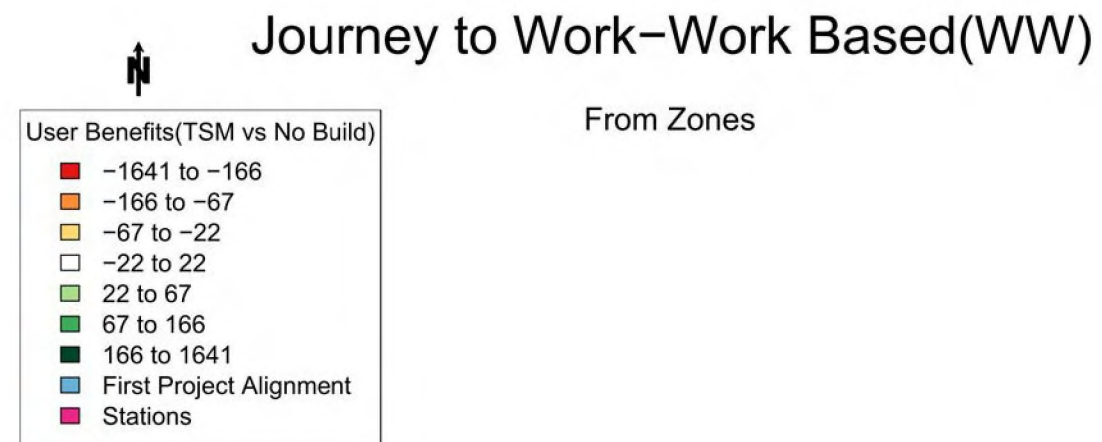


Figure 2-18. Visine Map of User Benefits (in minutes) for Journey-to-Work/Work-Related From Zones—TSM Alternative vs. No Build Alternative

Figure 2-19. Visine Map of User Benefits (in minutes) for Journey-to-Work/Work-Related To Zones—TSM Alternative vs. No Build Alternative

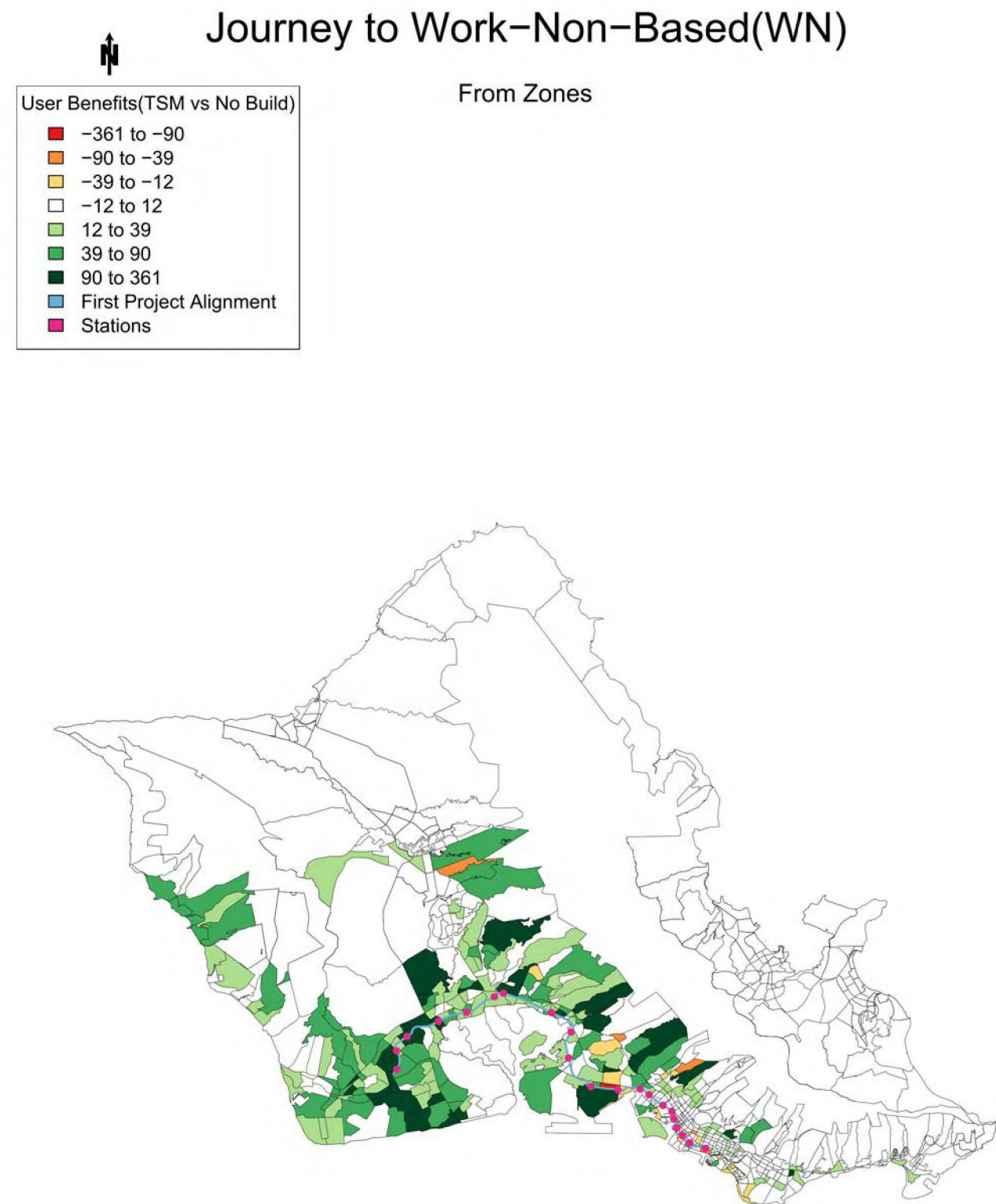


Figure 2-20. Visine Map of User Benefits (in minutes) for Journey-to-Work/Non-Work-Related From Zones—TSM Alternative vs. No Build Alternative

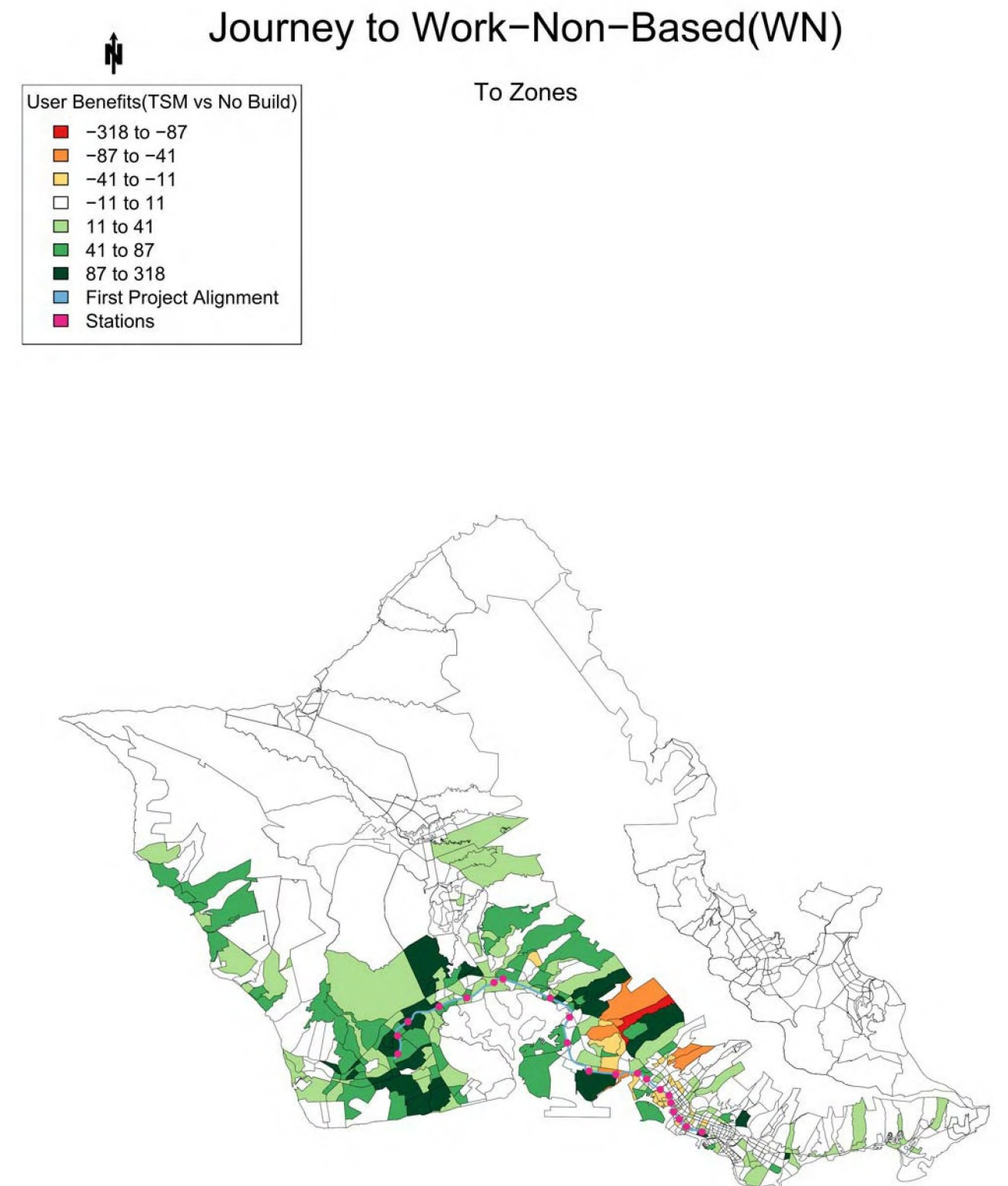


Figure 2-21. Visine Map of User Benefits (in minutes) for Journey-to-Work/Non-Work-Related To Zones—TSM Alternative vs. No Build Alternative

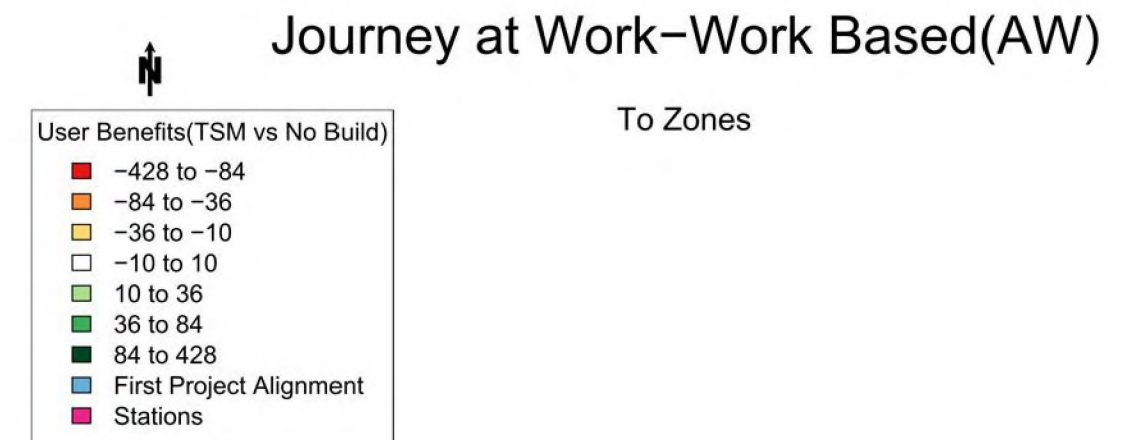
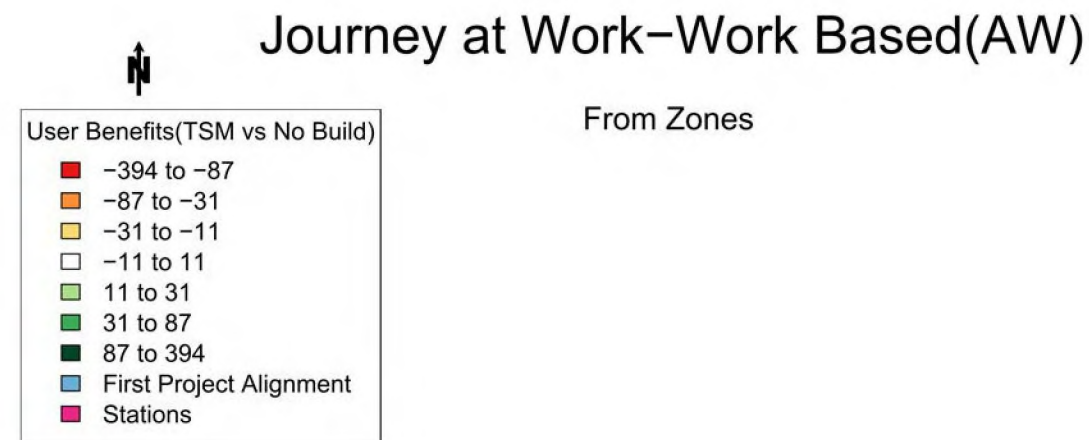


Figure 2-22. Visine Map of User Benefits (in minutes) for Journey-at-Work/Work-Related From Zones—TSM Alternative vs. No Build Alternative

Figure 2-23. Visine Map of User Benefits (in minutes) for Journey-at-Work/Work-Related To Zones—TSM Alternative vs. No Build Alternative

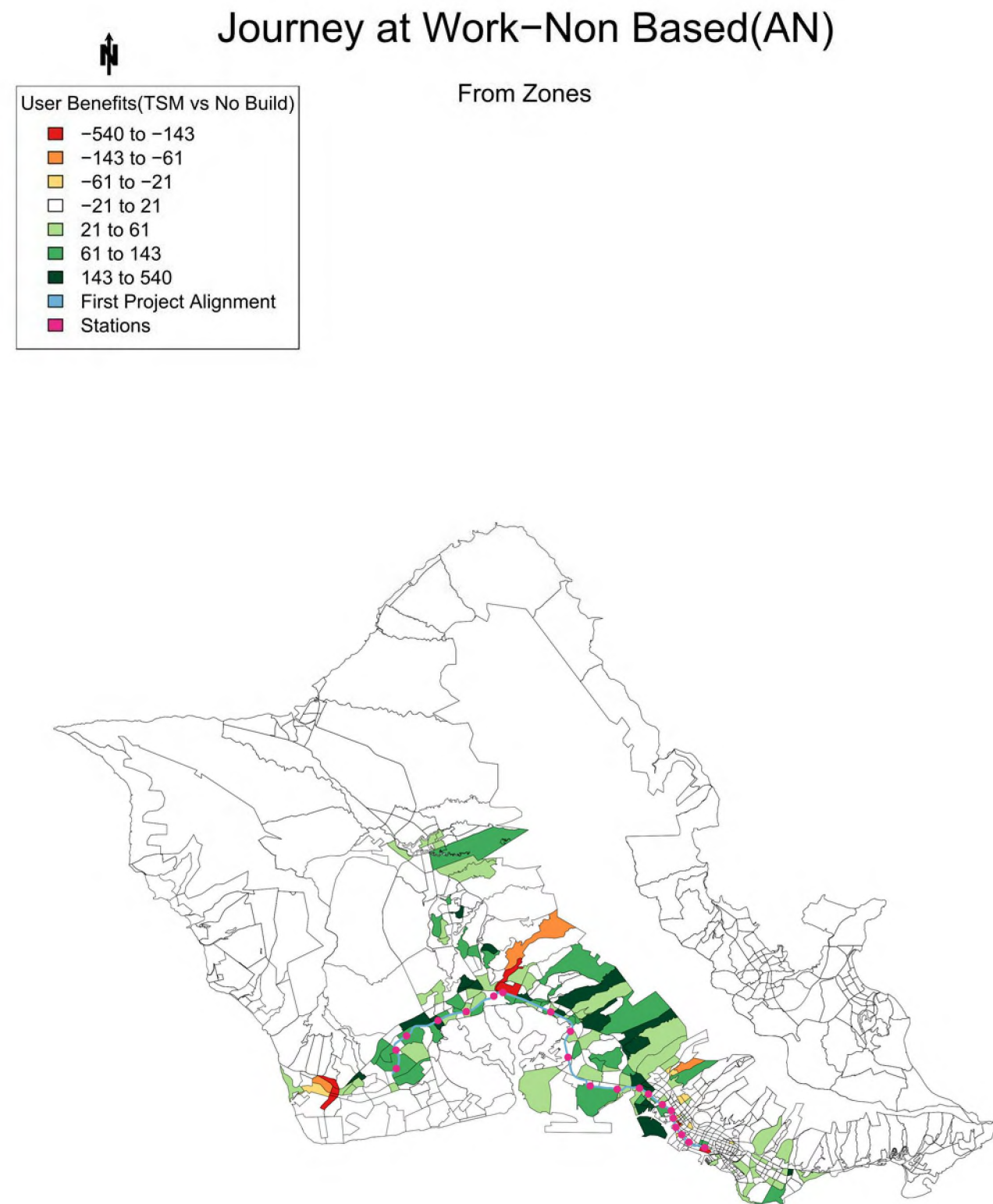


Figure 2-24. Visine Map of User Benefits (in minutes) for Journey-at-Work/Non-Work-Related From Zones—TSM Alternative vs. No Build Alternative

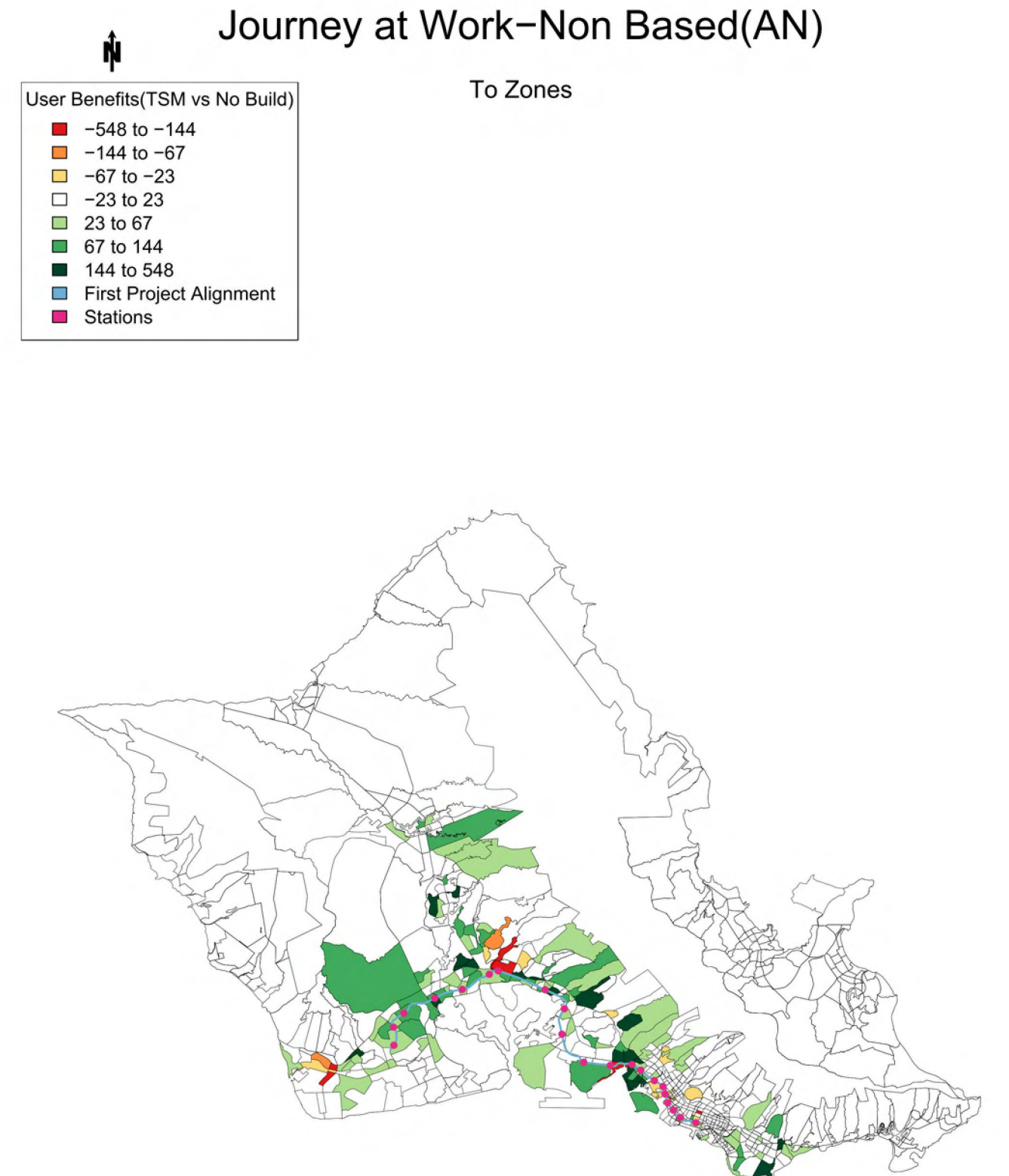


Figure 2-25. Visine Map of User Benefits (in minutes) for Journey-at-Work/Non-Work-Related To Zones—TSM Alternative vs. No Build Alternative

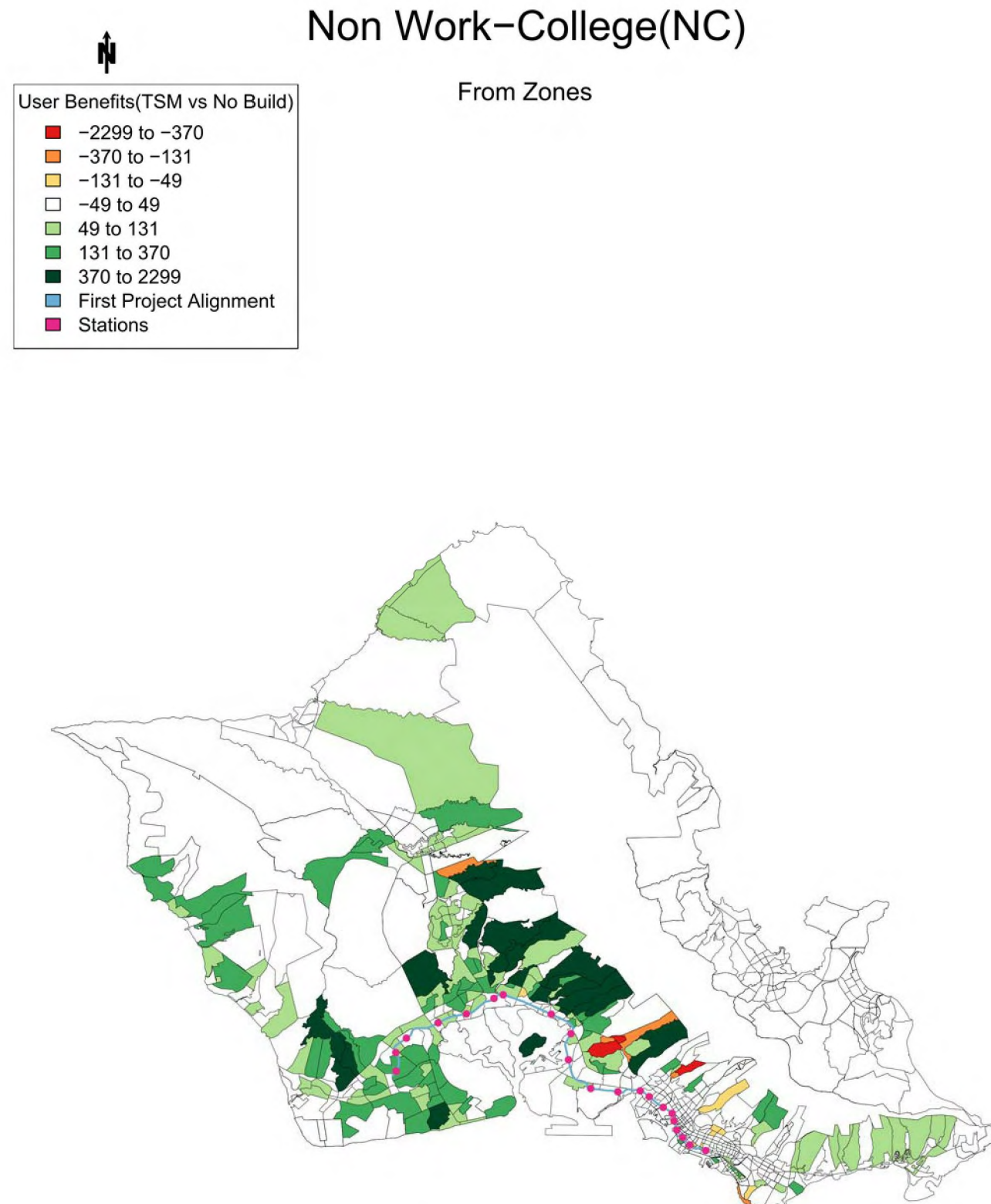


Figure 2-26. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-College From Zones—TSM Alternative vs. No Build Alternative

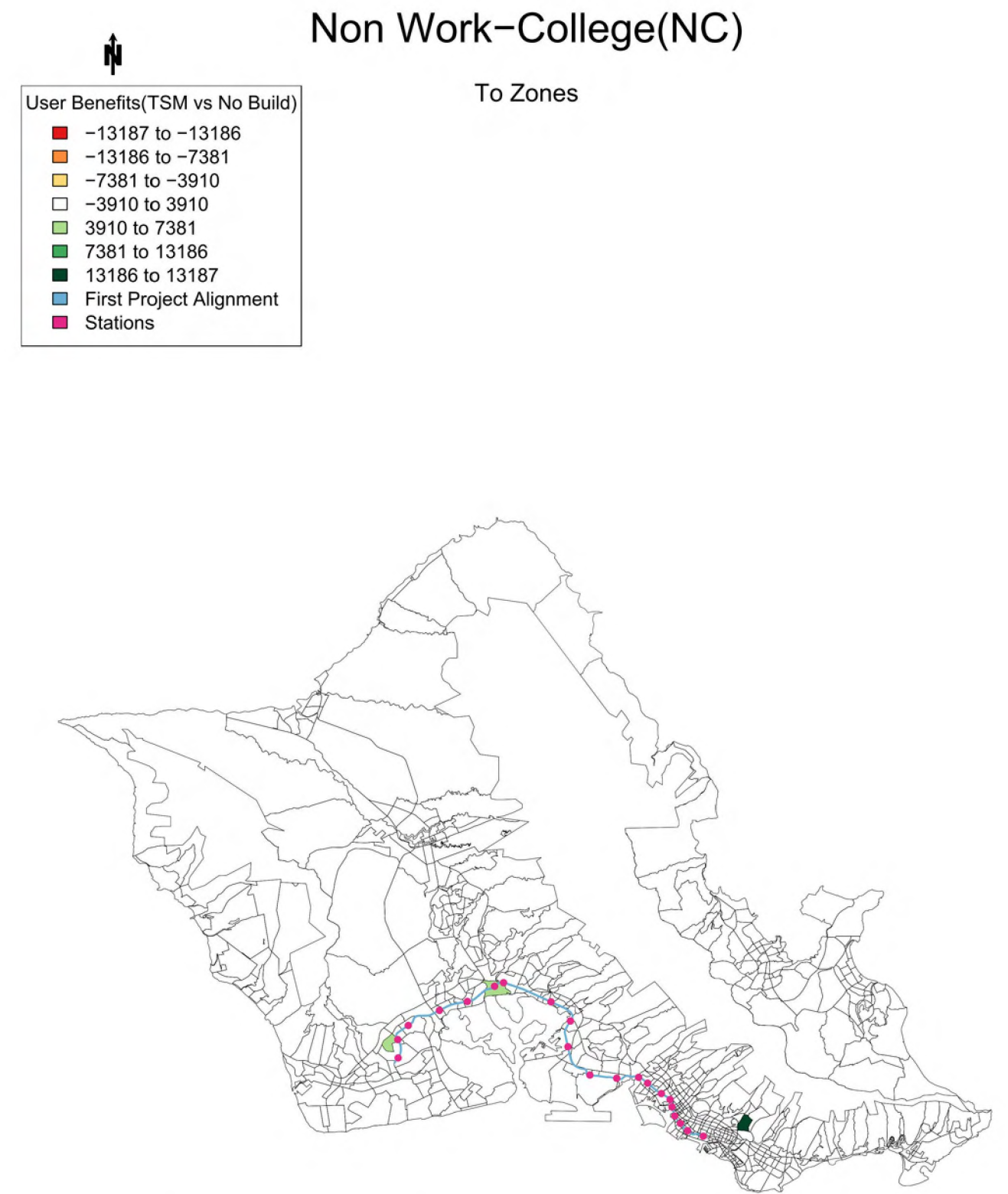


Figure 2-27. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-College To Zones—TSM Alternative vs. No Build Alternative

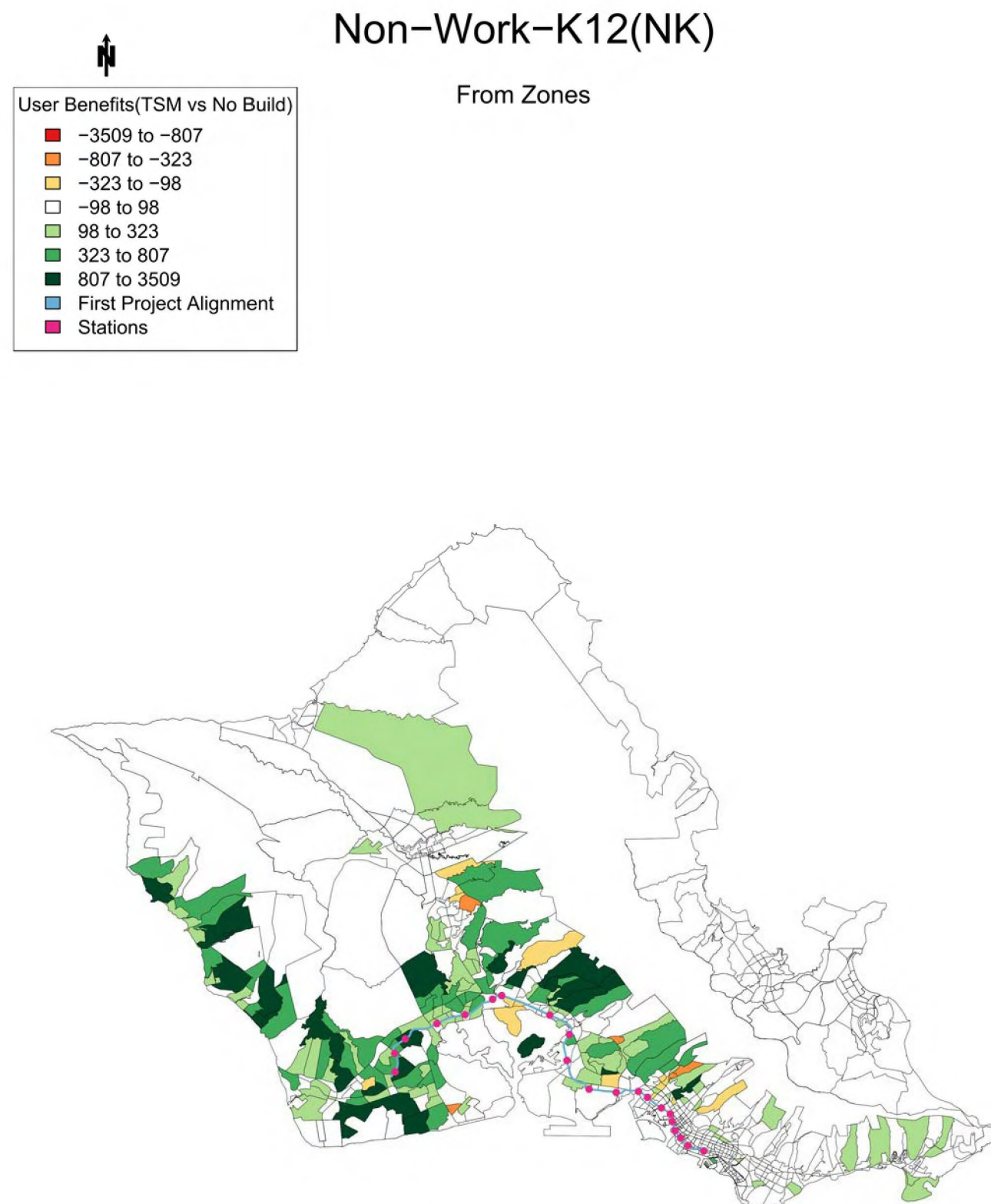


Figure 2-28. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-School (K-12) From Zones—TSM Alternative vs. No Build Alternative

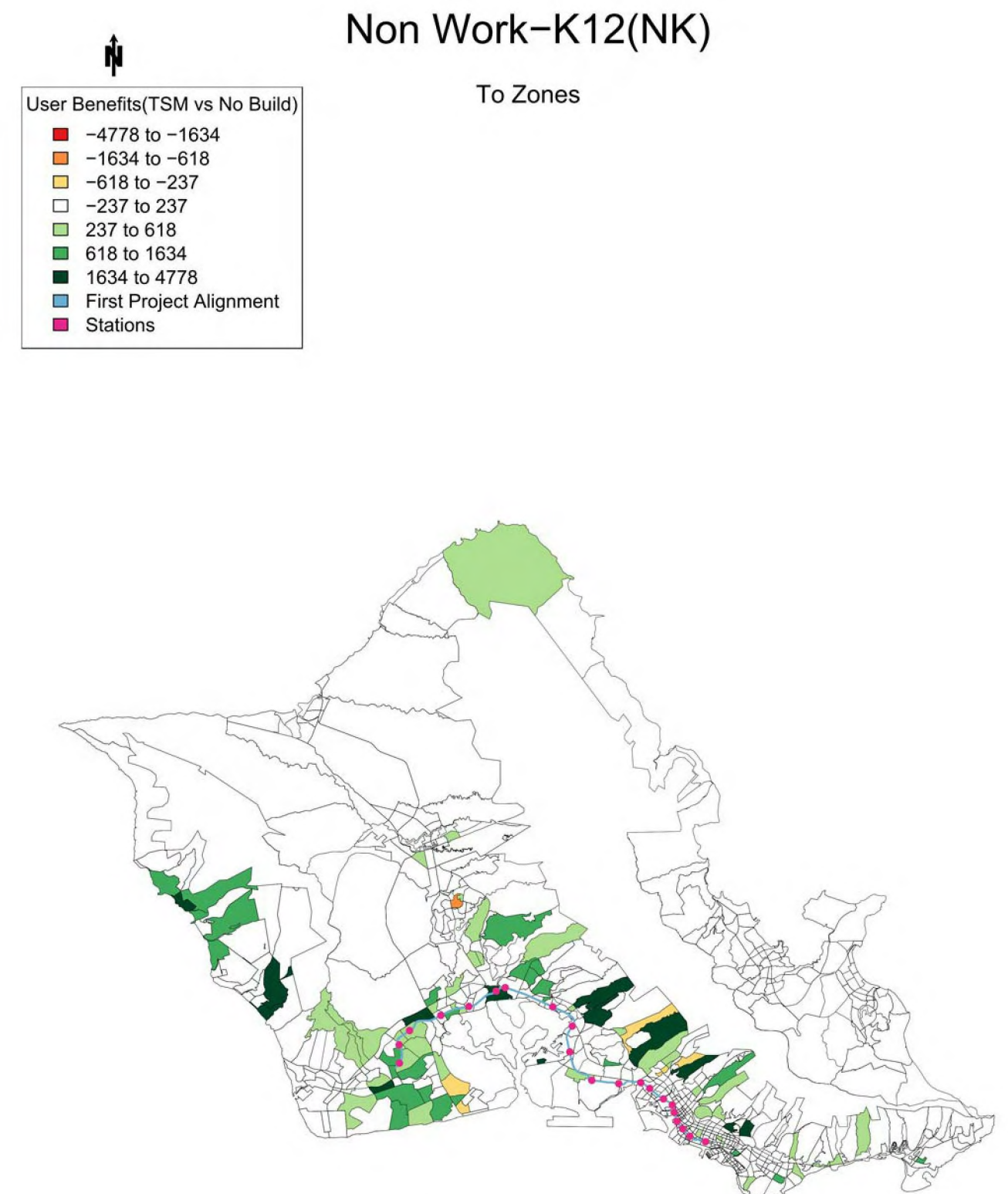


Figure 2-29. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-School (K-12) To Zones—TSM Alternative vs. No Build Alternative

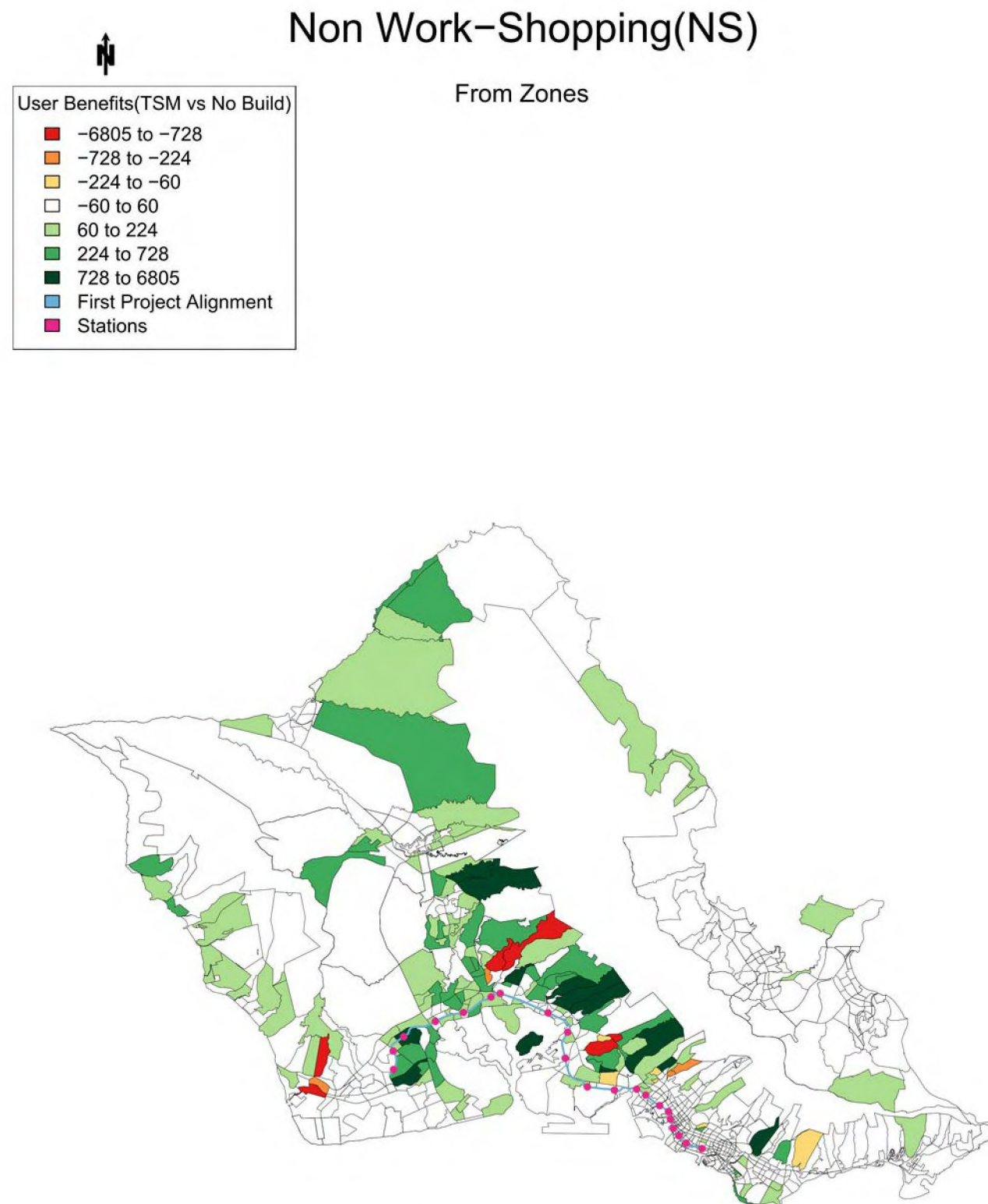


Figure 2-30. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Shopping From Zones—TSM Alternative vs. No Build Alternative

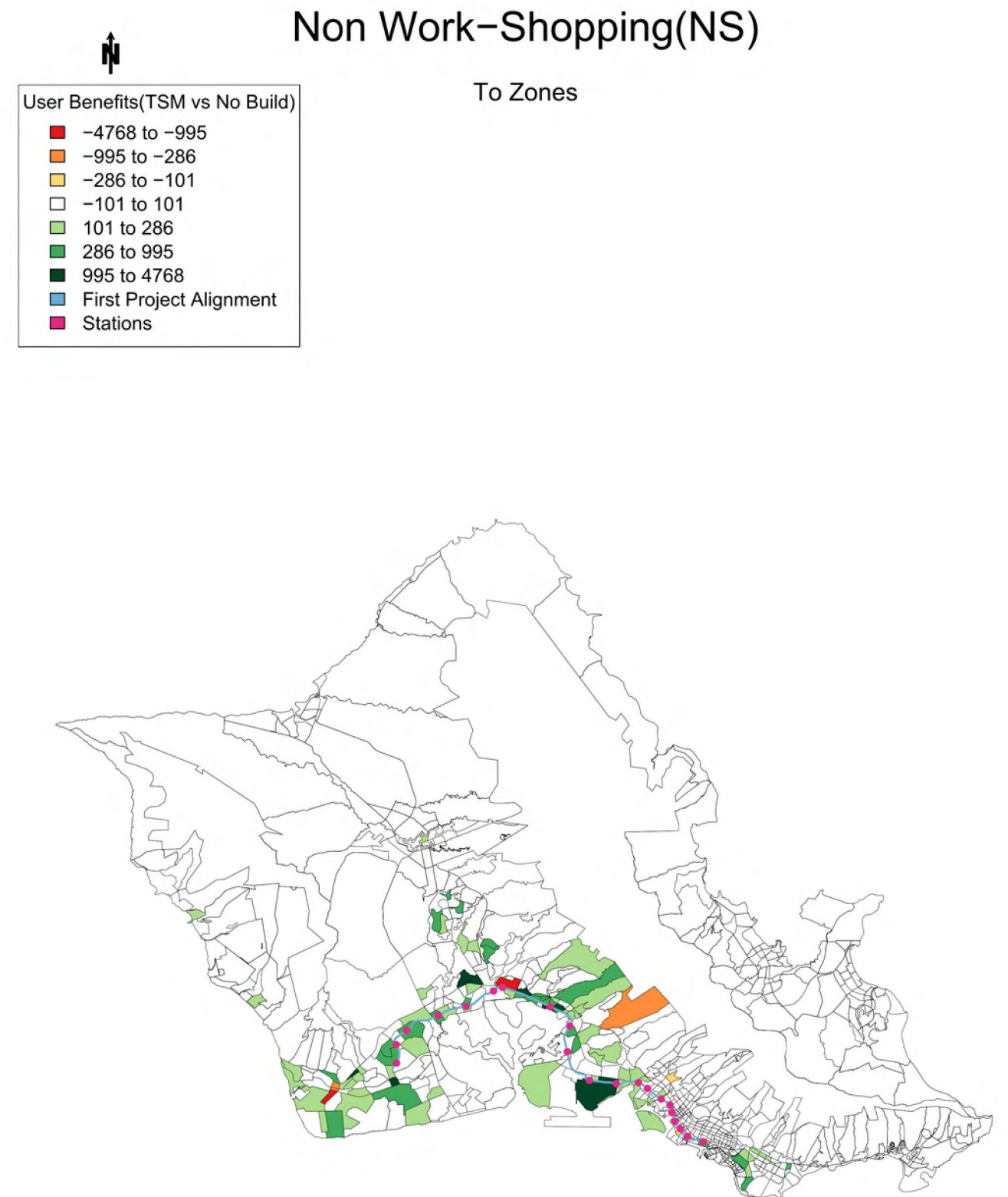


Figure 2-31. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Shopping To Zones—TSM Alternative vs. No Build Alternative

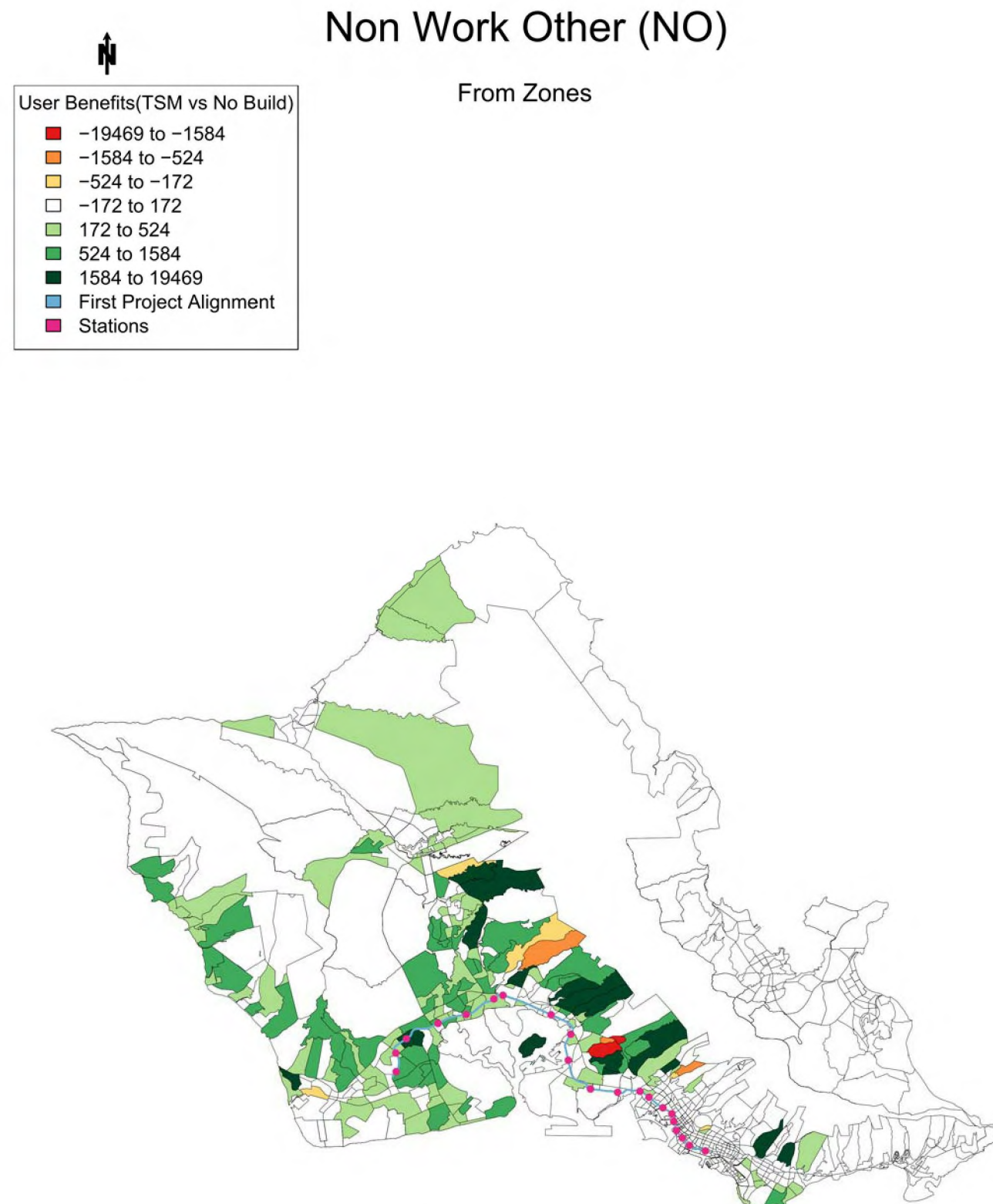


Figure 2-32. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Other From Zones—TSM Alternative vs. No Build Alternative

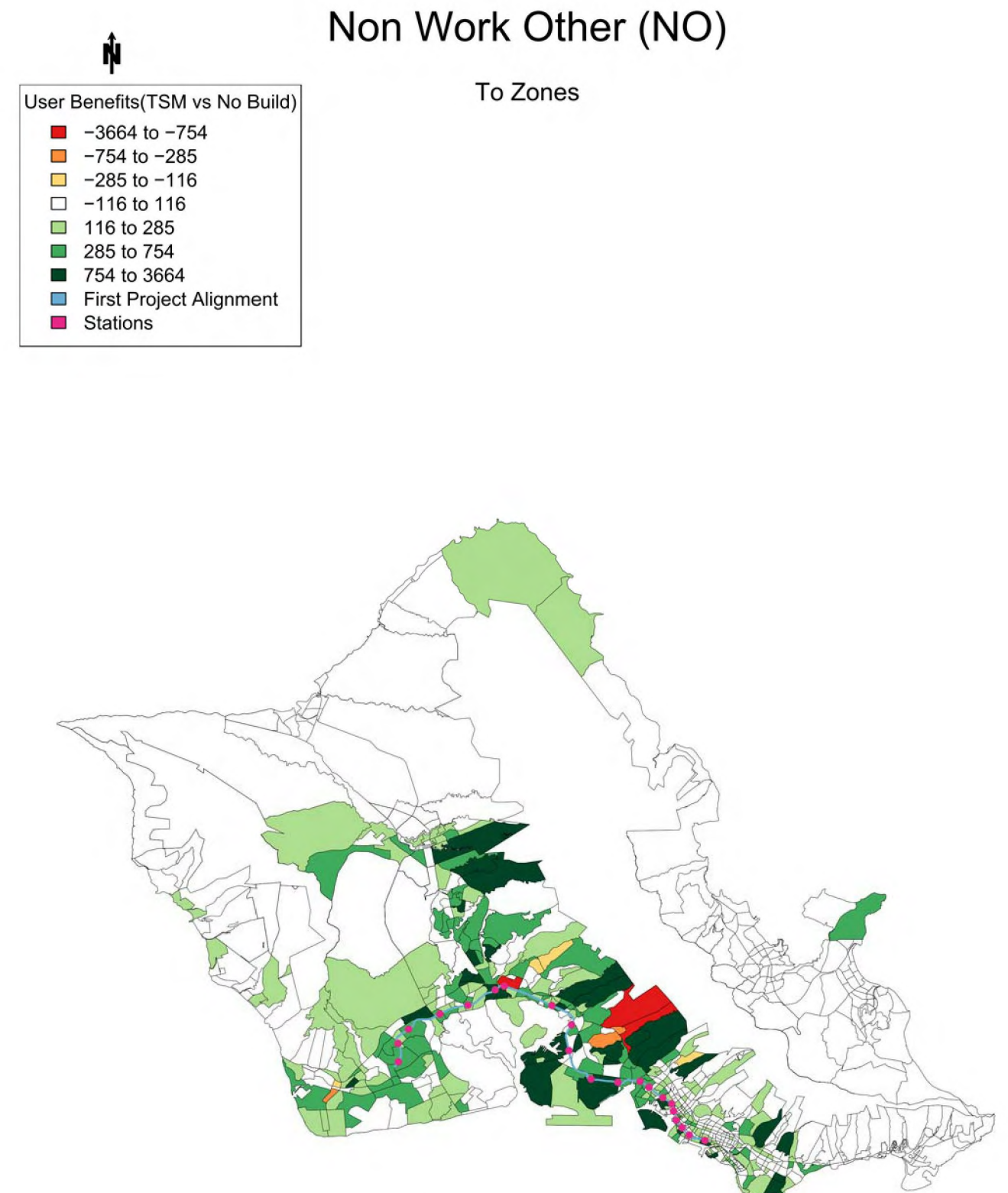


Figure 2-33. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Other To Zones—TSM Alternative vs. No Build Alternative

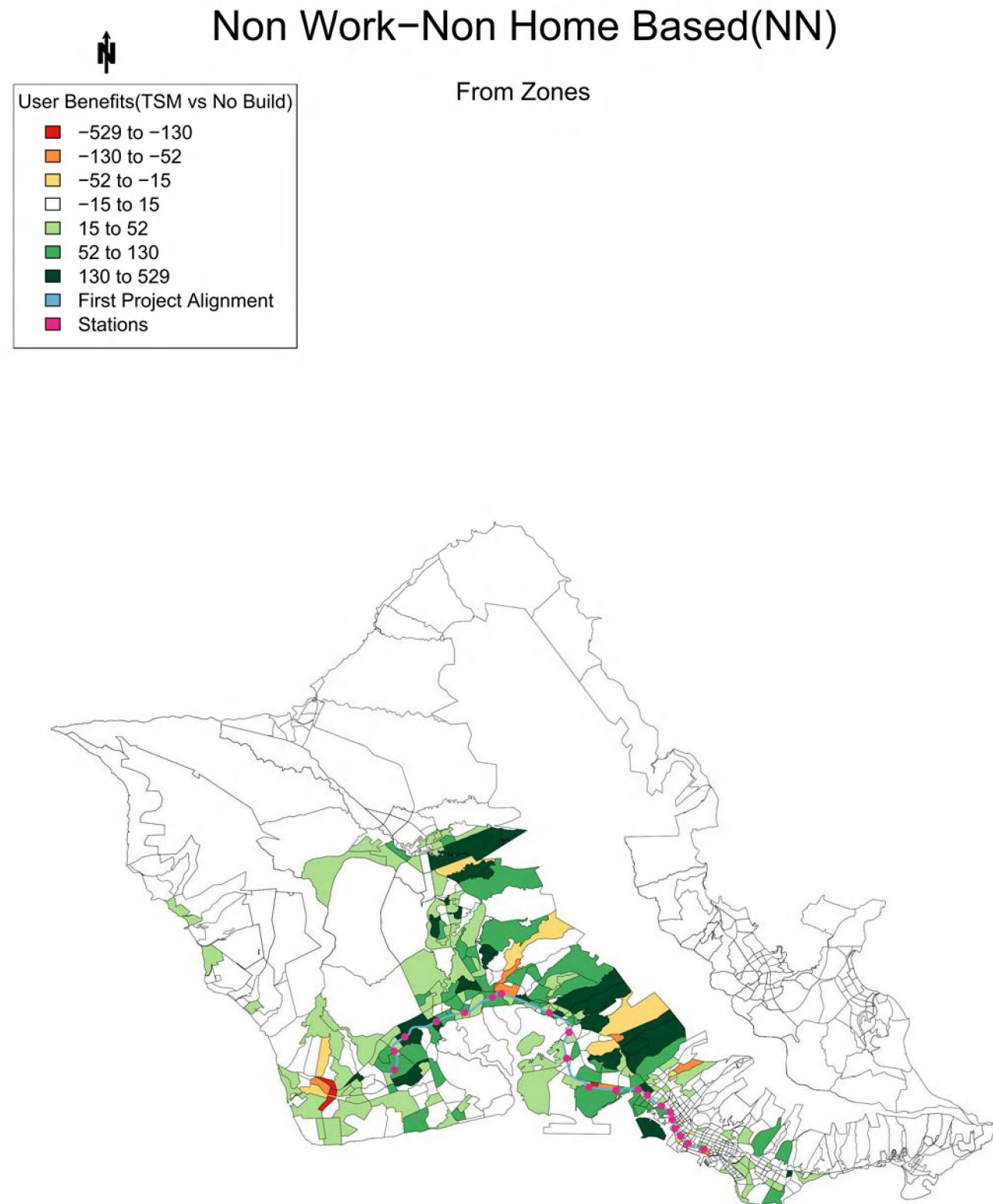


Figure 2-34. Visine Map of User Benefits (in minutes) for Non-Work-Related/Non-Home-Based From Zones—TSM Alternative vs. No Build Alternative

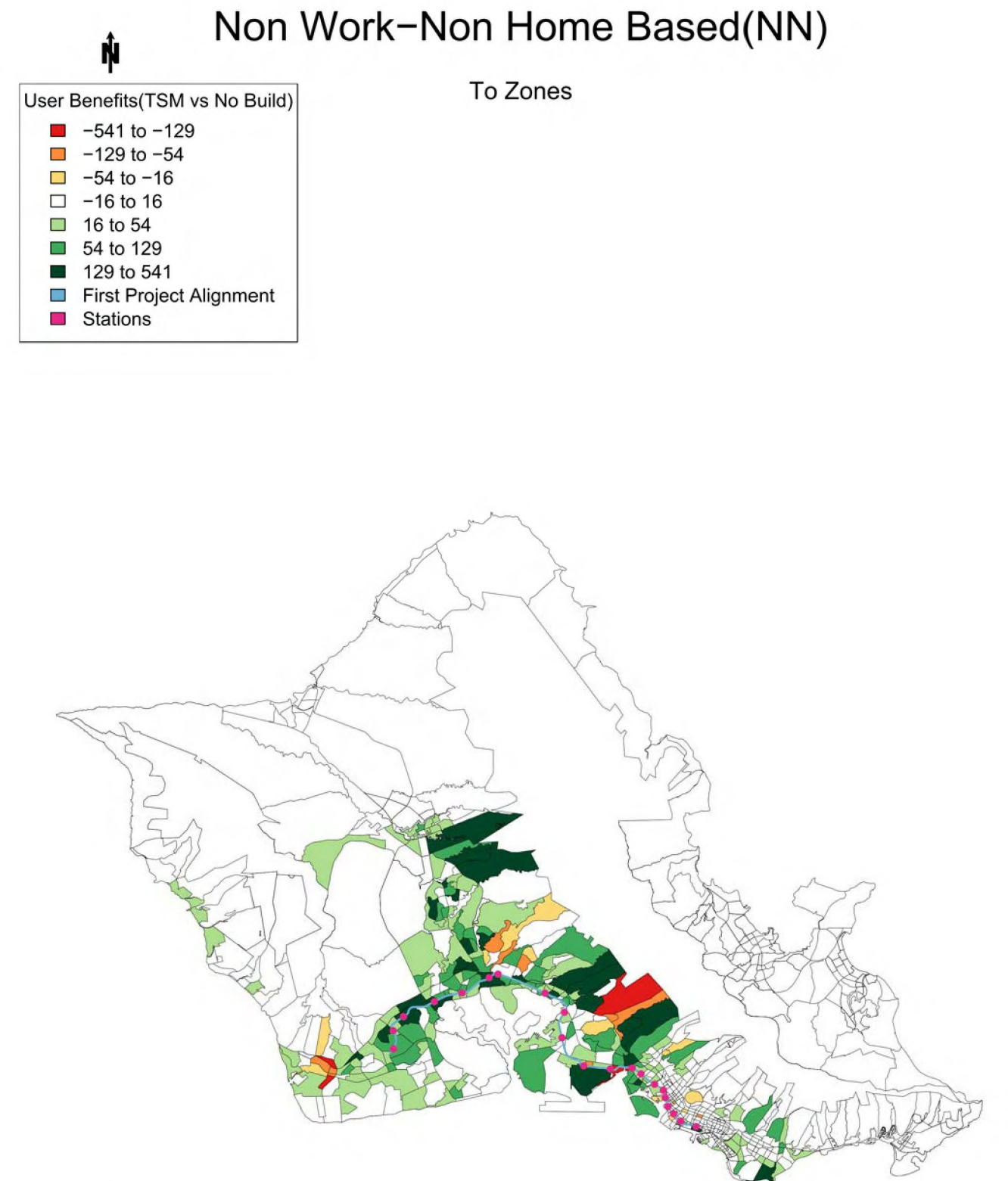


Figure 2-35. Visine Map of User Benefits (in minutes) for Non-Work-Related/Non-Home-Based To Zones—TSM Alternative vs. No Build Alternative

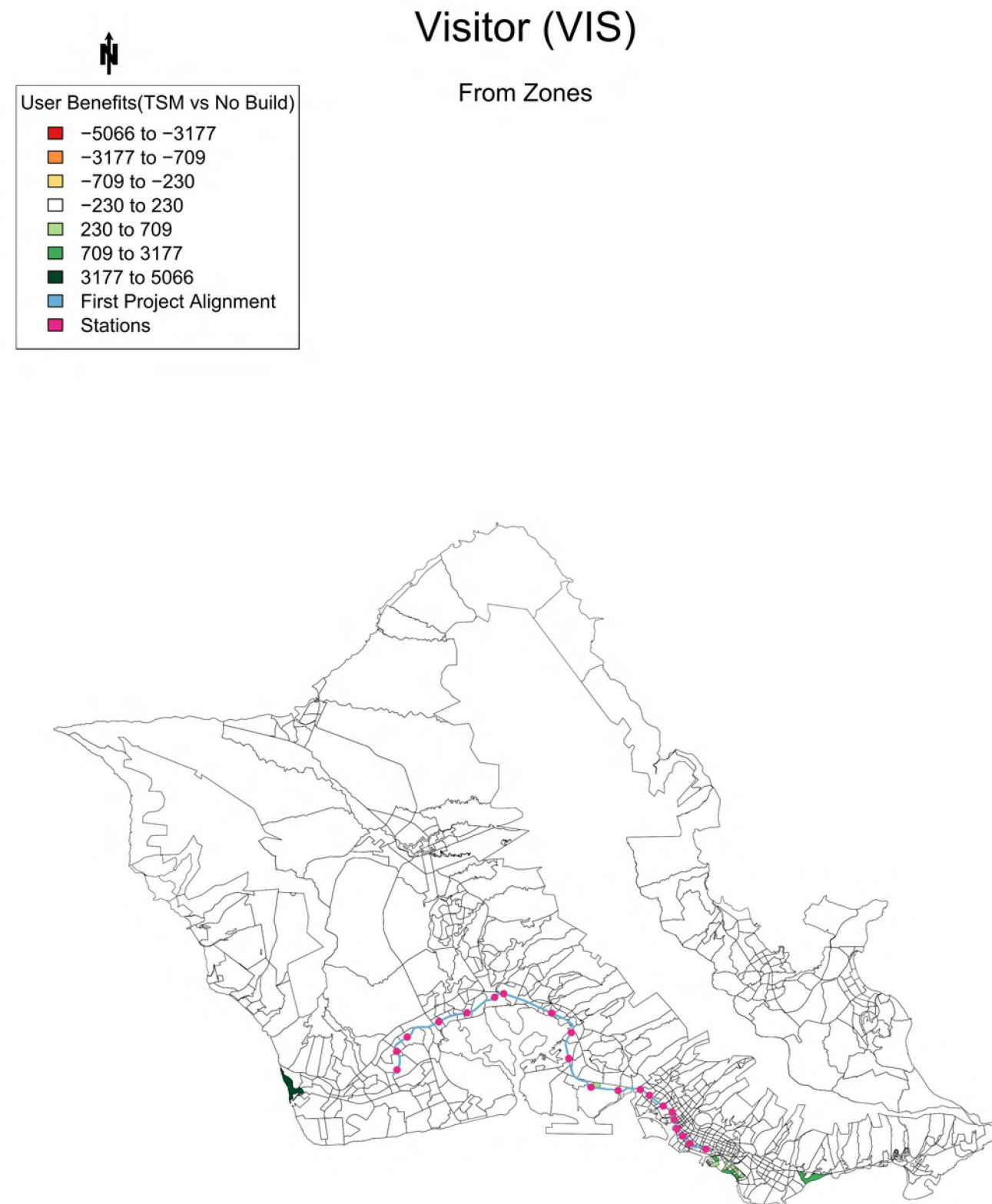


Figure 2-36. Visine Map of User Benefits (in minutes) for Visitors From Zones—TSM Alternative vs. No Build Alternative

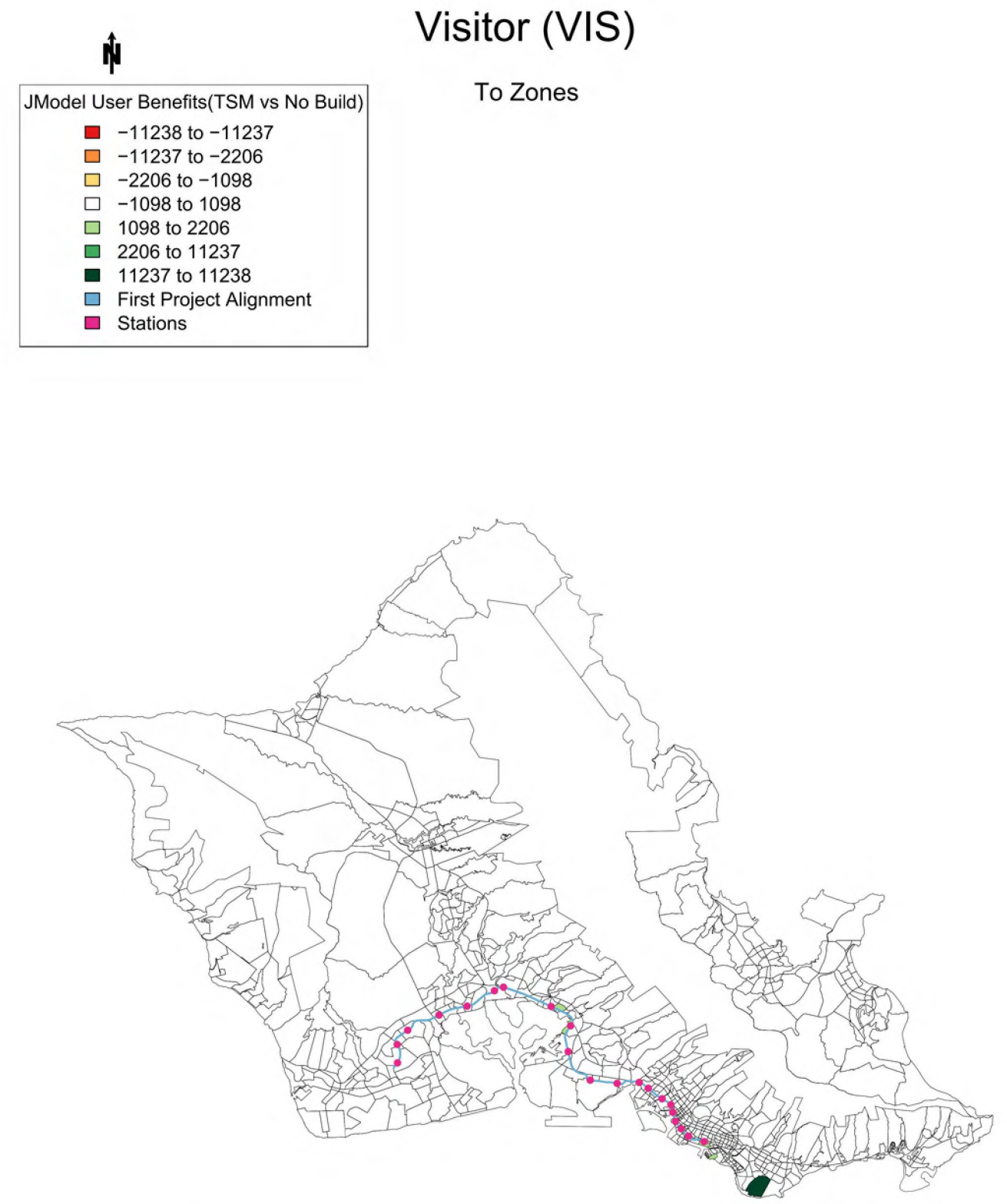


Figure 2-37. Visine Map of User Benefits (in minutes) for Visitors To Zones—TSM Alternative vs. No Build Alternative

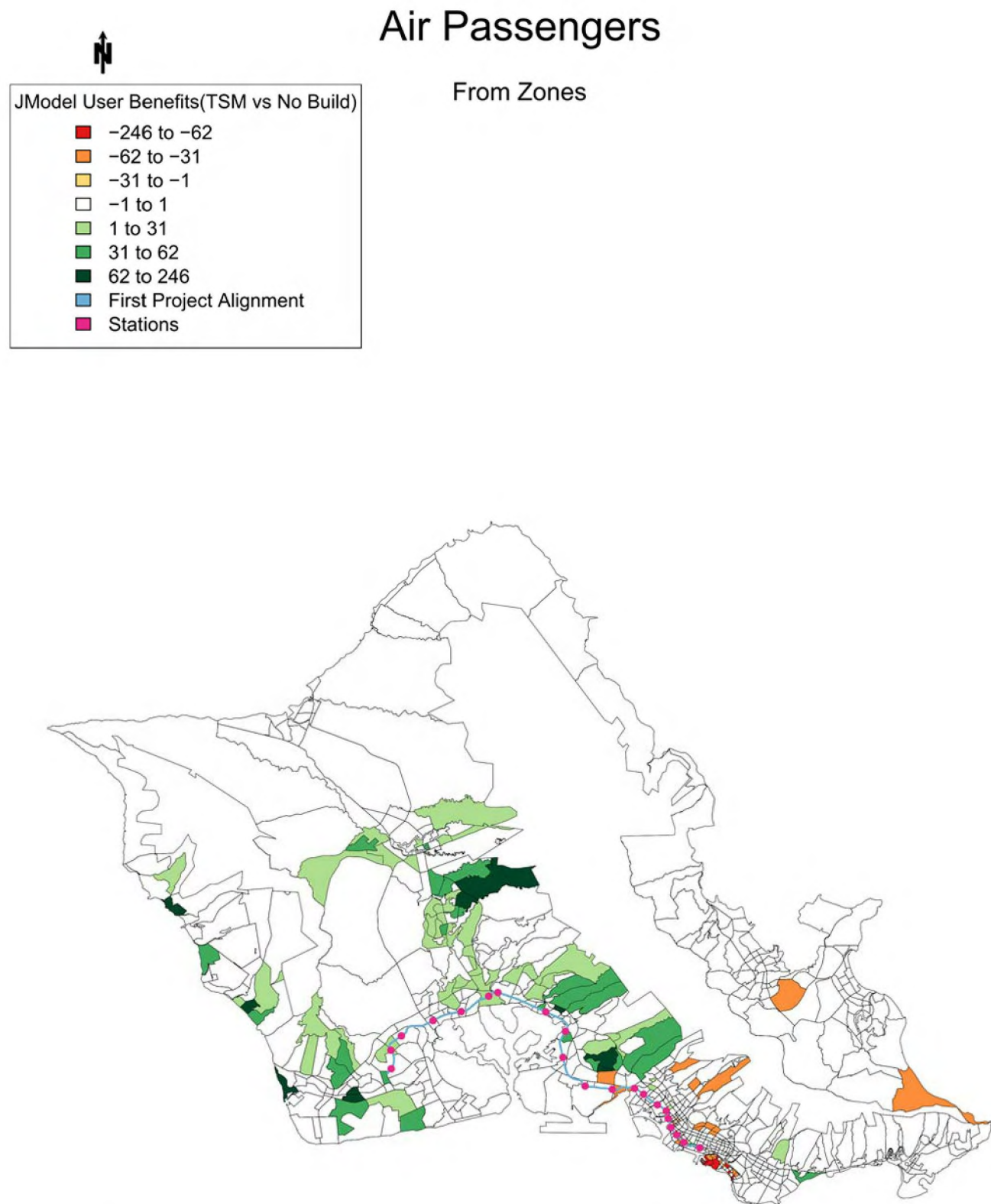


Figure 2-38. Visine Map of User Benefits (in minutes) for Ground Access Air Passenger From Zones—TSM Alternative vs. No Build Alternative

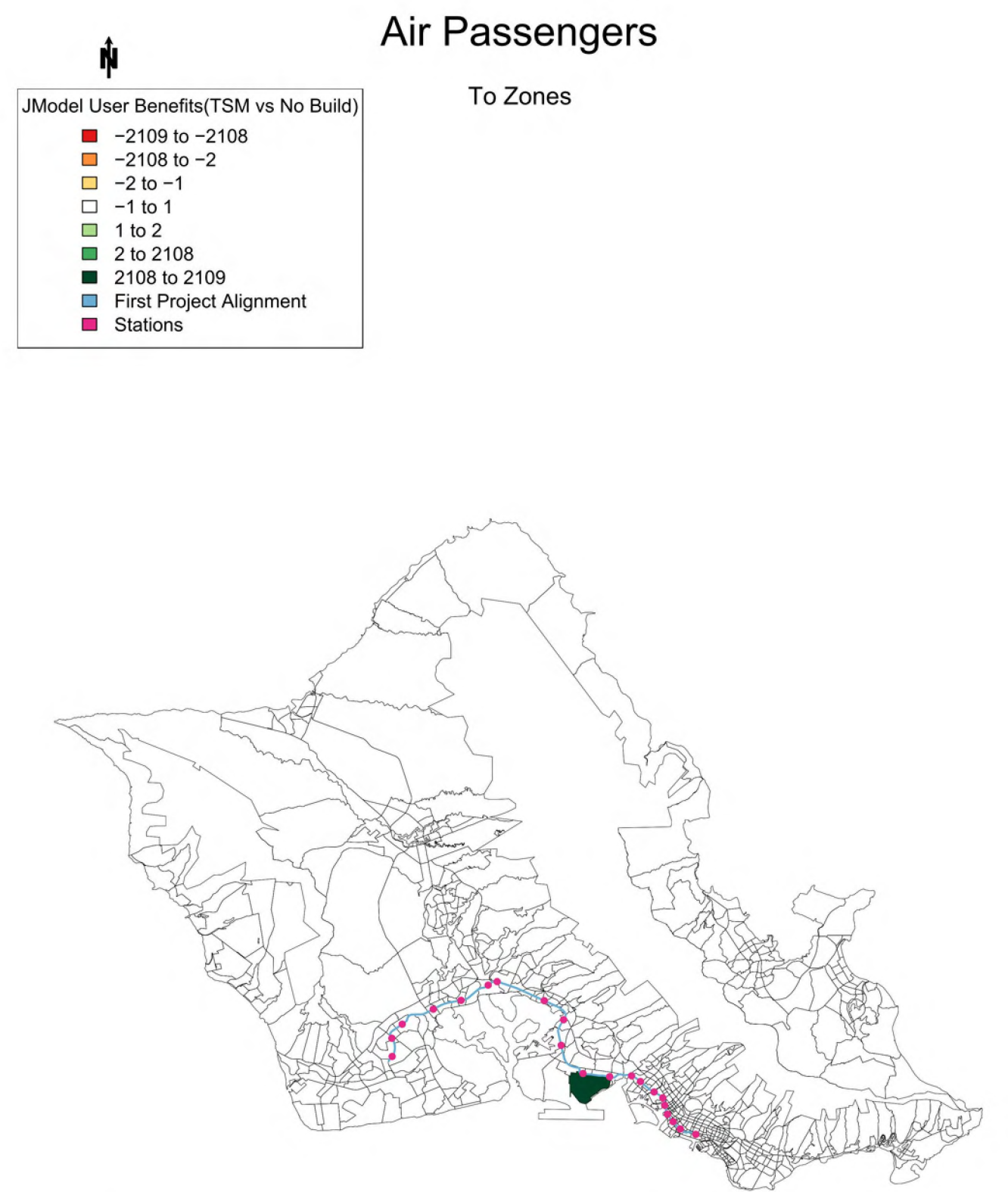


Figure 2-39. Visine Map of User Benefits (in minutes) for Ground Access Air Passenger To Zones—TSM Alternative vs. No Build Alternative

Table 2-30. District-to-District User Benefits for All Trip Purposes (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikale	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ōhe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	(1498)	(358)	(229)	(190)	554	(392)	(190)	51	(1372)	1383	82	142	8	237	31	40	24	115	(1)	2	0	(1)	26	(353)	256	565	(1067)
Kaka'ako	(1355)	(77)	174	(394)	767	(714)	(613)	113	(801)	854	65	187	9	127	41	44	26	284	(71)	(88)	(14)	1	37	521	250	(85)	(713)
Mō'ili'ili	(2132)	860	(18)	927	1300	(419)	(487)	36	(793)	1177	62	158	25	165	56	61	67	533	(47)	(58)	(24)	(28)	23	1183	550	221	3396
Waikīkī	(3711)	(910)	(986)	(1122)	16759	(231)	(784)	(407)	(578)	2842	66	173	8	194	39	27	13	264	(44)	(47)	(103)	(14)	16	134	149	(717)	11030
Kaimukī-Wai'alae	2667	1246	2077	2813	6220	392	692	292	(206)	708	95	215	29	134	55	104	28	1002	31	71	17	10	30	752	766	823	21063
Palama-Liliha	(1412)	(38)	(244)	(113)	567	7187	(584)	412	(597)	2338	83	314	37	239	74	58	50	176	(77)	3	(7)	(4)	26	4	258	4	8753
Kalihi-Iwilei	187	275	74	(83)	353	(556)	3631	565	94	1485	14	193	8	97	25	37	23	104	14	7	4	1	20	40	220	410	7244
Airport-Pearl Harbor	626	201	148	85	113	280	577	(2364)	2761	2581	17	78	(7)	617	192	110	65	44	34	46	9	8	14	35	393	94	6756
Salt Lake-Āliamanu	(4643)	(1234)	(756)	(701)	(366)	(729)	1072	18478	9809	(3924)	143	291	28	651	58	232	118	(42)	(418)	(377)	(101)	38	67	(298)	(307)	(428)	16663
Pearl City-'Aiea	11120	2527	2287	1550	1999	2152	6425	10862	7002	48308	936	3188	319	7675	1598	1849	743	314	532	665	304	128	198	559	5518	1602	120362
'Ewa	4952	1344	1872	3844	1719	1012	4060	1651	1401	1918	12711	26415	2632	6434	925	1136	513	441	226	491	218	140	1588	689	1083	857	80275
Kapolei	2850	710	1069	3592	931	475	1954	2220	778	1602	6943	10564	1462	3592	692	835	473	304	138	194	248	128	1458	388	1144	1969	46713
Makakilo	2048	684	850	1655	771	476	1573	1427	682	1386	2964	5073	116	2298	493	586	325	218	133	165	257	65	940	370	1109	441	27103
Waipahu-Waikale	2932	764	1206	2925	841	583	480	1168	654	3773	5266	7864	1115	13781	4235	3486	1007	270	140	172	404	178	480	424	1904	591	56644
Waiawa	4030	899	1403	4633	980	315	998	1086	788	(4506)	937	2969	376	12267	2373	4830	1293	161	117	106	(14)	15	210	239	1410	548	38463
Mililani	3385	917	792	871	891	260	1322	2254	680	3188	1012	3855	290	5092	3969	5963	2527	232	137	169	20	43	366	167	1960	287	40647
Wahiawa	1067	296	427	409	478	122	548	1082	291	1064	302	1520	128	1190	682	1851	617	87	37	38	0	0	248	103	1571	155	14313
East Honolulu	2955	577	1735	2252	2659	102	665	451	(322)	834	121	356	18	189	43	94	32	2703	39	37	53	30	83	520	1190	661	18078
Kāne'ōhe	(76)	(112)	(88)	(184)	232	(233)	96	108	(1350)	1462	128	322	38	217	80	162	51	81	0	1	0	0	71	115	30	16	1169
Kailua	(160)	(149)	(111)	(205)	204	(236)	(197)	44	(1333)	1462	172	483	28	261	62	97	62	116	0	0	0	0	94	117	2	(2)	811
Ko'olau Loa	(14)	(29)	(23)	(58)	136	(8)	37	38	(408)	339	74	221	13	85	4	26	0	19	0	0	0	0	56	45	(1)	0	554
North Shore	412	165	207	122	388	(56)	112	428	(173)	965	298	1205	65	543	82	135	4	71	5	16	0	0	121	97	757	(8)	5959
Wai'anae	2904	913	1004	1186	1352	472	1734	1741	862	1580	951	6616	462	1295	458	919	641	392	191	325	134	133	17989	427	1740	601	47024
Makiki-Mānoa	(571)	361	2588	2109	985	(213)	(128)	(92)	(533)	700	71	139	14	112	38	63	18	305	(17)	(20)	(4)	2	25	712	276	1099	8039
UH Mānoa	9	146	148	347	142	(16)	16	19	(72)	35	13	12	1	9	0	7	4	37	0	0	0	0	7	85	36	69	1053
Ala Moana Center	(272)	(76)	(172)	(25)	5	(33)	(43)	7	(35)	34	3	4	0	10	1	3	2	7	(5)	(8)	(1)	0	1	31	7	0	(552)
Total	26302	9903	15433	26247	40983	9993	22965	41670	17228	73590	33530	72558	7221	57513	16305	22754	8723	8241	1091	1908	1402	872	24195	7106	22274	9773	579780

Table 2-31. District-to-District User Benefits for Journey-to-Work/Home-Based-Work (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	(32)	(65)	(78)	(211)	155	(131)	106	28	(745)	803	35	76	2	134	21	13	20	54	0	2	0	0	17	1	17	3	224
Kaka'ako	(627)	21	(40)	(393)	175	(419)	(223)	58	(584)	539	40	91	1	89	35	12	23	122	(42)	(62)	(2)	0	17	100	40	(13)	(1042)
Mō'ili'ili	(1390)	634	53	671	314	(262)	(233)	(22)	(394)	742	40	92	12	88	47	27	50	209	(31)	(41)	(3)	0	4	335	99	80	1121
Waikīkī	(1877)	(653)	(655)	(574)	739	(155)	(368)	(110)	(293)	313	31	53	1	100	16	13	12	47	(28)	(37)	(2)	(2)	2	47	74	(44)	(3351)
Kaimukī-Wai'alae	1166	391	290	1203	587	63	227	103	(205)	403	35	60	14	63	41	23	17	193	11	4	1	0	4	58	56	13	4822
Palama-Liliha	(966)	(140)	(182)	(111)	79	631	(310)	(207)	(768)	1192	57	154	11	118	59	32	39	62	(28)	(10)	(2)	(2)	8	0	22	46	(217)
Kalihi-Iwilei	50	(68)	7	(56)	75	(259)	467	143	(133)	709	10	107	1	27	15	17	16	28	4	3	1	0	11	13	34	52	1273
Airport-Pearl Harbor	242	37	45	8	5	32	111	395	338	508	7	32	2	404	142	9	20	3	13	14	1	1	1	12	16	(1)	2398
Salt Lake-Āliamanu	(2689)	(782)	(508)	(447)	(113)	(412)	(407)	7416	1075	146	40	158	17	230	(10)	70	48	(6)	(125)	(136)	(8)	7	8	(64)	(27)	(161)	3322
Pearl City-'Aiea	5559	1067	997	674	272	681	2327	4229	2524	9738	454	1613	103	2572	899	499	227	71	194	168	13	10	71	108	445	238	35753
'Ewa	3436	677	1237	3055	514	431	2272	1294	721	539	4187	15405	1244	1887	264	241	137	147	65	88	29	22	1075	148	523	399	40037
Kapolei	1237	297	491	1709	151	112	840	707	355	529	2626	5766	575	1180	209	230	144	47	28	32	11	9	655	55	307	212	18512
Makakilo	1299	320	434	1345	153	121	740	752	335	503	1598	4785	134	962	170	221	132	45	28	31	10	17	433	49	329	202	15148
Waipahu-Waikele	2106	354	808	2564	146	98	172	443	260	956	1146	3031	265	2935	836	709	262	49	26	39	4	39	123	46	386	293	18096
Waiawa	3452	580	1217	4484	212	130	474	150	259	(450)	443	1439	145	2017	254	937	387	58	58	62	(11)	4	69	66	368	400	17204
Mililani	2467	587	538	715	286	109	611	188	59	370	393	1327	121	1081	637	86	307	82	55	65	(5)	13	73	71	603	136	10976
Wahiawa	817	262	333	383	135	71	265	(7)	18	101	106	458	39	346	188	(82)	0	34	17	23	0	0	43	48	379	101	4080
East Honolulu	2129	474	1157	445	575	62	430	238	(50)	454	43	110	5	79	36	28	22	634	22	27	6	2	9	170	218	98	7424
Kāne'ohe	(99)	(72)	(58)	(134)	34	(102)	86	31	(587)	765	40	111	12	96	52	36	39	44	0	0	0	0	7	(5)	10	0	307
Kailua	(157)	(81)	(65)	(161)	28	(142)	(139)	31	(466)	761	55	131	9	114	52	32	52	64	0	0	0	0	9	(5)	2	(2)	122
Ko'olau Loa	(11)	(10)	(12)	(35)	4	(4)	27	11	(92)	62	9	29	1	14	5	1	0	10	0	0	0	0	2	(1)	(1)	0	7
North Shore	389	68	139	101	60	(1)	20	(14)	(68)	33	25	125	4	149	18	3	0	25	3	6	0	0	14	24	207	(5)	1327
Wai'anae	1844	397	416	483	218	91	653	895	298	534	724	4065	244	985	226	196	182	71	50	45	3	14	3222	56	674	138	16725
Makiki-Mānoa	(474)	264	1203	1619	200	(133)	(67)	(7)	(212)	491	34	65	4	79	34	34	15	139	(14)	(17)	(1)	2	4	150	184	267	3860
UH Mānoa	8	106	80	170	11	(11)	15	11	(37)	21	1	4	0	5	0	2	4	12	0	0	0	0	0	26	11	22	462
Ala Moana Center	0	0	0	0	0	2	(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	17879	4665	7850	17508	5012	604	8095	16757	1608	20761	12180	39287	2966	15755	4247	3389	2155	2243	307	306	44	136	5881	1508	4977	2474	198593

Table 2-32. District-to-District User Benefits for Journey-to-Work/Home-Based-Other (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	1	(5)	(9)	(8)	29	(26)	(9)	5	(65)	114	1	3	0	2	1	0	1	7	0	0	0	0	0	1	1	2	46
Kaka'ako	(32)	(1)	1	(11)	23	(58)	(40)	3	(41)	66	0	2	1	5	0	1	1	16	(1)	(2)	0	0	0	23	2	(6)	(49)
Mō'ili'ili	(72)	25	2	25	43	(35)	(38)	(1)	(39)	51	1	2	1	4	0	0	1	37	(1)	(2)	0	0	1	62	5	32	103
Waikīkī	(166)	(118)	(128)	(81)	176	(23)	(57)	(8)	(25)	37	1	3	0	9	1	0	0	41	(2)	(1)	(1)	0	0	22	16	(41)	(346)
Kaimukī-Wai'alae	20	8	22	43	80	1	4	1	(1)	20	1	1	0	1	1	0	0	40	0	0	0	0	1	7	2	8	259
Palama-Liliha	13	(2)	(7)	(4)	7	38	(15)	(19)	(14)	131	1	3	1	4	1	1	1	5	1	1	0	0	1	1	(1)	16	164
Kalihi-Iwilei	1	(4)	1	(1)	7	(25)	22	12	(16)	94	1	1	2	1	2	0	0	2	0	0	0	0	0	2	1	29	130
Airport-Pearl Harbor	4	1	0	0	0	2	4	22	34	64	1	1	0	2	1	0	1	0	0	0	0	0	0	0	1	2	137
Salt Lake-Āliamanu	(50)	(19)	(13)	(5)	(4)	(20)	(5)	369	302	(89)	0	3	1	5	1	1	1	0	(4)	(4)	0	0	1	(2)	(2)	(16)	447
Pearl City-'Aiea	56	20	17	5	7	20	46	123	138	1221	26	48	8	140	52	16	6	2	4	4	1	1	5	4	14	28	2011
'Ewa	62	22	32	13	19	13	224	28	32	22	459	971	141	131	11	4	2	8	2	2	1	1	29	10	25	44	2307
Kapolei	22	9	11	6	9	4	85	19	14	18	256	456	87	65	7	4	1	4	1	1	0	1	53	3	21	27	1184
Makakilo	28	13	17	10	8	7	100	25	20	21	153	369	17	59	7	5	2	4	1	1	1	1	25	5	19	32	948
Waipahu-Waikele	45	16	14	10	8	5	7	13	8	46	163	190	39	278	69	42	10	4	1	2	0	1	10	5	19	27	1032
Waiawa	34	14	17	8	9	4	10	4	7	(106)	44	85	19	245	37	104	37	4	1	1	(1)	0	7	6	17	21	630
Mililani	44	19	18	11	11	5	23	8	2	14	21	40	8	100	111	24	35	5	1	2	0	1	4	6	20	26	558
Wahiawa	16	7	8	4	5	2	6	(1)	(1)	4	4	13	4	25	28	1	0	2	1	1	0	0	4	3	10	15	159
East Honolulu	76	19	60	21	58	2	15	6	(5)	24	2	3	1	2	1	1	1	98	1	1	0	0	1	18	9	20	433
Kāne'ohe	1	(1)	(2)	(10)	1	(11)	7	0	(37)	50	1	4	0	2	1	1	1	2	0	0	0	0	1	0	1	0	11
Kailua	1	(2)	(3)	(3)	1	(14)	(6)	(1)	(35)	53	3	4	0	2	1	1	1	4	0	0	0	0	2	0	0	0	10
Ko'olau Loa	0	0	0	(1)	0	0	1	0	(4)	3	0	1	0	1	0	0	0	1	0	0	0	0	1	0	0	0	2
North Shore	10	3	7	2	5	(1)	2	0	(5)	3	1	3	1	2	1	1	0	3	0	1	0	0	1	4	13	(2)	53
Wai'anae	37	15	17	10	11	5	25	19	13	22	18	115	13	15	2	2	1	6	1	2	0	0	642	6	34	31	1064
Makiki-Mānoa	(20)	47	107	60	28	(13)	(10)	(1)	(16)	42	1	1	1	2	1	1	1	20	(1)	(1)	0	0	1	31	14	106	402
UH Mānoa	1	6	5	8	2	0	1	(1)	(1)	1	2	0	0	0	0	0	0	3	0	0	0	0	0	5	1	10	43
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	130	89	197	107	543	(117)	400	627	265	1925	1161	2322	345	1102	334	209	103	317	5	8	0	4	788	220	241	412	11736

Table 2-33. District-to-District User Benefits for Journey-to-Work/Work-Based (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	(19)	(42)	(19)	(79)	26	(25)	(32)	(5)	(58)	60	3	7	1	7	3	2	1	11	0	0	0	0	0	1	1	1	(156)
Kaka'ako	(71)	(10)	(2)	(68)	11	(25)	(43)	1	(29)	32	1	4	0	1	1	1	1	11	(3)	(4)	0	0	0	10	3	(7)	(185)
Mō'ili'ili	(131)	29	(13)	91	22	(10)	(34)	1	(28)	32	2	2	0	2	2	1	1	13	(2)	(4)	0	0	0	25	11	50	64
Waikīkī	(128)	(44)	(25)	(77)	47	(4)	(23)	(4)	(13)	7	0	1	0	1	0	1	1	4	(1)	(1)	0	0	0	7	8	(6)	(249)
Kaimukī-Wai'alae	137	32	46	226	93	7	19	7	(12)	22	1	2	0	2	1	1	1	20	2	2	0	0	1	4	4	34	652
Palama-Liliha	(82)	(21)	(25)	(27)	7	4	(13)	(11)	(45)	55	2	4	1	4	4	2	2	7	(2)	(2)	0	0	1	(1)	2	20	(116)
Kalihi-Iwilei	19	(25)	(1)	(37)	8	(40)	125	16	(28)	61	3	10	1	1	0	3	1	8	1	1	0	0	1	1	6	43	177
Airport-Pearl Harbor	10	(5)	(1)	(18)	2	(2)	23	(59)	92	48	1	7	1	8	0	0	0	3	0	0	0	0	1	1	5	(17)	99
Salt Lake-Āliamanu	481	98	53	45	15	50	173	421	463	125	5	15	2	20	6	6	2	8	6	7	1	0	1	9	8	65	2087
Pearl City-'Aiea	640	137	104	108	37	63	185	159	87	694	30	92	9	154	23	13	3	14	22	23	1	0	8	16	28	104	2754
'Ewa	142	35	49	53	19	11	97	27	12	29	326	750	57	175	25	14	4	10	2	4	1	1	29	7	37	29	1947
Kapolei	260	64	79	113	31	16	112	54	41	64	404	961	84	263	43	35	14	15	6	8	1	2	64	11	90	68	2903
Makakilo	94	29	29	56	11	8	41	22	14	20	68	208	4	63	10	10	4	4	2	3	1	1	13	4	29	35	784
Waipahu-Waikele	116	37	17	73	11	5	4	33	14	83	144	268	27	351	77	64	20	6	5	6	1	3	14	2	20	36	1438
Waiawa	88	21	22	28	7	4	15	5	4	(13)	25	79	9	109	8	79	34	4	2	3	0	1	5	4	17	16	576
Mililani	(41)	(13)	(2)	(15)	0	(5)	3	4	(3)	19	19	69	5	98	56	(2)	11	1	(1)	(2)	0	0	5	(1)	6	(5)	209
Wahiawa	66	16	19	22	6	3	13	0	(2)	8	6	25	2	31	23	(20)	0	4	2	2	0	0	2	3	18	18	268
East Honolulu	197	29	83	57	43	4	28	7	(3)	15	0	1	1	2	1	1	1	48	2	1	0	0	0	10	15	26	566
Kāne'ohe	0	(4)	(7)	(23)	2	(11)	(10)	1	(34)	36	1	5	1	5	2	2	2	5	0	0	0	0	0	(1)	0	0	(28)
Kailua	1	(5)	(8)	(26)	3	(14)	(19)	0	(32)	38	2	5	0	5	2	2	2	7	0	0	0	0	1	(1)	0	0	(36)
Ko'olau Loa	(1)	(1)	(1)	(8)	1	(1)	(1)	0	(12)	5	1	1	0	1	0	0	0	2	0	0	0	0	0	0	0	0	(14)
North Shore	22	3	10	12	4	2	1	0	(5)	2	1	4	0	5	1	1	0	2	0	1	0	0	1	1	17	(2)	79
Wai'anae	132	37	42	74	21	10	56	28	10	22	35	176	15	34	8	7	4	11	3	4	0	1	302	5	68	48	1155
Makiki-Mānoa	(12)	68	107	133	10	(4)	(5)	1	(10)	12	1	2	0	2	0	1	1	8	(1)	(1)	0	0	0	17	19	77	427
UH Mānoa	(1)	19	25	47	1	(1)	1	0	(1)	3	0	0	0	0	0	0	0	3	0	0	0	0	0	4	7	20	128
Ala Moana Center	(126)	(28)	19	(29)	(2)	(18)	(22)	4	(13)	12	1	1	0	2	0	1	0	3	(2)	(4)	0	0	1	6	5	0	(190)
Total	1795	458	598	732	435	27	695	714	408	1491	1082	2697	218	1347	296	224	109	232	42	47	5	8	449	145	425	655	15337

Table 2-34. District-to-District User Benefits for Journey-to-Work/Non-Work-Based (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	6	(56)	(30)	(11)	31	(70)	(40)	(4)	(47)	138	4	8	1	26	4	2	4	16	(1)	(1)	0	0	1	(1)	(2)	(3)	(26)
Kaka'ako	(28)	(14)	(1)	(8)	16	(35)	(40)	2	(25)	56	9	7	5	3	2	1	3	17	(4)	(5)	0	0	1	31	1	(7)	(14)
Mō'ili'ili	(78)	14	4	35	23	(40)	(27)	0	(22)	46	2	4	4	4	4	1	1	26	(2)	(4)	0	0	3	50	8	46	102
Waikīkī	(65)	(53)	(40)	(77)	82	(14)	(18)	(2)	(14)	23	2	4	2	11	1	0	1	8	(2)	(2)	(1)	0	1	13	15	(8)	(133)
Kaimukī-Wai'alae	25	10	29	76	145	(7)	8	2	(8)	27	4	4	0	8	1	2	1	43	1	1	1	0	2	5	1	20	400
Palama-Liliha	(20)	16	(12)	(6)	0	281	91	14	(4)	142	8	5	2	14	5	3	2	4	10	7	1	(1)	1	(2)	3	15	581
Kalihi-Iwilei	10	(14)	2	(5)	7	(220)	160	11	(26)	131	7	13	4	11	0	4	4	10	1	1	0	0	3	2	5	21	139
Airport-Pearl Harbor	2	(2)	(2)	(3)	2	(4)	18	(90)	108	85	5	12	1	19	1	1	0	2	0	0	0	0	2	1	5	(5)	159
Salt Lake-Āliamanu	7	1	(2)	(4)	1	13	15	177	218	115	8	17	1	29	7	6	4	2	(2)	(2)	0	0	4	1	1	(13)	604
Pearl City-'Aiea	47	23	16	13	9	14	32	37	22	927	53	82	25	206	44	13	4	7	12	11	1	1	11	5	11	14	1640
'Ewa	28	26	26	17	19	11	31	7	3	12	588	593	81	118	9	6	2	13	4	5	1	1	32	9	20	8	1669
Kapolei	18	11	14	10	10	3	21	11	1	26	572	1109	137	155	20	16	4	11	3	3	1	2	84	5	22	16	2285
Makakilo	2	2	3	2	2	0	5	3	1	7	70	136	1	31	7	5	1	3	1	1	0	1	15	1	7	3	310
Waipahu-Waikele	23	12	14	12	10	2	13	6	(2)	19	194	193	44	455	83	45	5	7	4	4	2	2	17	2	17	10	1194
Waiawa	4	1	2	(1)	2	0	2	0	(2)	(27)	31	51	12	132	19	107	25	2	1	1	0	(1)	5	1	6	1	374
Mililani	14	3	9	2	4	0	4	3	(5)	2	19	34	6	68	65	2	19	5	1	2	1	1	5	1	7	4	275
Wahiawa	3	(1)	2	1	2	(2)	2	(1)	(4)	1	8	15	4	25	22	2	0	4	1	1	0	0	4	1	4	4	97
East Honolulu	13	9	29	10	34	(2)	4	2	(3)	13	2	5	1	3	1	1	2	92	1	1	0	0	2	6	0	(7)	217
Kāne'ohe	6	1	(2)	(1)	2	4	10	0	(20)	26	2	5	2	4	1	2	1	3	0	0	0	0	4	0	1	0	50
Kailua	1	(1)	(2)	(2)	2	(2)	(3)	1	(20)	30	4	7	2	6	2	1	2	4	0	0	0	0	4	0	0	0	35
Ko'olau Loa	0	(1)	(1)	(1)	0	0	1	1	(5)	3	1	1	1	1	0	0	0	2	0	0	0	0	1	0	0	0	4
North Shore	1	0	1	1	2	(2)	1	0	(2)	1	1	2	0	2	1	1	0	1	0	0	0	0	1	1	4	0	15
Wai'anae	5	5	7	3	5	(3)	4	3	(1)	11	17	53	10	8	2	2	1	7	1	1	0	0	458	2	16	2	619
Makiki-Mānoa	(5)	44	94	41	14	(13)	(1)	0	(10)	15	1	2	0	3	1	1	1	12	(1)	(1)	0	0	1	29	13	53	296
UH Mānoa	(1)	8	17	27	3	(5)	1	0	(4)	4	1	1	0	2	0	0	0	6	0	0	0	0	1	23	5	17	106
Ala Moana Center	(45)	(15)	10	(5)	(1)	(14)	(10)	1	(8)	8	0	1	0	2	1	1	0	2	(1)	(2)	0	0	0	7	2	0	(67)
Total	(25)	32	188	125	427	(106)	282	184	119	1842	1615	2366	345	1345	302	222	86	309	26	19	7	5	662	193	169	190	10929

Table 2-35. District-to-District User Benefits for Journey-at-Work/Work-Based (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ōhe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	(167)	(28)	(20)	37	55	(5)	(68)	13	(82)	87	5	5	1	33	1	1	(1)	5	0	0	0	0	1	(7)	0	143	8
Kaka'ako	(56)	(11)	4	37	26	(5)	(18)	6	(13)	34	1	5	0	10	1	2	0	5	(1)	(2)	0	0	1	8	0	(8)	26
Mō'ili'ili	(29)	9	13	4	74	(5)	(4)	7	(22)	14	1	2	0	5	0	2	0	4	(1)	(1)	0	(1)	1	3	1	2	81
Waikīkī	(4)	(13)	0	(7)	190	(1)	(6)	(11)	(14)	14	2	4	0	11	1	2	0	8	(1)	(1)	0	0	1	8	11	(5)	190
Kaimukī-Wai'alae	30	16	58	77	331	13	7	4	(3)	10	1	2	0	5	1	2	0	21	0	1	0	0	1	7	11	11	605
Palama-Liliha	(6)	0	(2)	1	16	68	(1)	23	(8)	37	1	2	0	6	0	2	0	1	0	0	0	0	1	0	(1)	(5)	136
Kalihi-Iwilei	38	90	20	4	19	37	368	42	45	58	2	5	0	10	2	4	1	2	1	1	0	0	1	2	2	40	792
Airport-Pearl Harbor	78	43	13	(4)	7	42	46	(413)	345	49	0	(1)	1	22	13	23	10	1	1	1	0	0	1	1	2	2	280
Salt Lake-Āliamanu	12	1	4	2	7	16	83	400	188	79	3	4	1	22	9	17	6	0	1	0	(1)	1	1	0	2	7	865
Pearl City-'Aiea	76	23	8	7	5	22	44	213	93	479	1	(11)	(1)	174	(11)	109	33	1	2	2	0	1	0	1	0	8	1279
'Ewa	5	2	1	3	1	1	2	1	2	2	145	159	3	140	21	18	6	0	1	1	0	0	1	1	0	2	518
Kapolei	10	4	3	3	1	1	6	(4)	3	4	169	47	(8)	235	56	38	12	1	1	1	1	2	7	1	0	5	595
Makakilo	1	0	1	0	0	0	1	1	1	0	7	1	0	13	3	2	1	0	0	0	0	0	1	0	0	0	31
Waipahu-Waikele	25	8	5	8	2	3	10	25	17	180	131	193	11	471	166	177	43	1	2	2	0	2	(2)	1	1	5	1488
Waiawa	1	1	0	(1)	1	1	1	7	2	19	12	40	4	178	35	128	18	0	0	0	0	0	1	0	0	0	447
Mililani	(1)	0	(4)	(1)	0	(1)	4	24	10	134	11	31	1	166	101	267	90	0	0	(1)	0	1	2	(1)	0	(1)	833
Wahiawa	0	0	0	0	0	0	1	13	4	52	4	12	1	50	21	118	28	0	0	0	0	0	2	0	0	0	305
East Honolulu	3	1	4	5	25	1	1	1	(2)	2	1	1	0	1	0	1	0	2	0	0	0	0	0	1	1	4	49
Kāne'ōhe	0	(1)	(1)	0	1	0	(1)	2	(7)	6	1	2	0	3	0	1	0	0	0	0	0	0	1	0	0	0	7
Kailua	0	(1)	(1)	(1)	2	0	(1)	1	(8)	8	1	3	0	2	0	1	0	0	0	0	0	0	1	1	0	0	8
Ko'olau Loa	0	0	0	0	0	0	0	0	(1)	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
North Shore	0	0	0	0	0	0	0	1	0	5	1	2	0	3	0	1	0	0	0	0	0	0	0	0	0	0	13
Wai'anae	1	1	1	1	0	0	1	1	1	(1)	0	7	1	(4)	1	1	1	0	0	1	0	0	17	0	0	1	31
Makiki-Mānoa	(1)	5	10	11	10	(1)	(1)	1	(4)	2	0	1	0	1	0	0	0	1	0	0	0	0	0	1	(1)	7	41
UH Mānoa	0	1	1	19	12	0	(1)	1	(2)	1	0	1	0	0	0	1	0	1	0	0	0	0	0	(1)	0	0	32
Ala Moana Center	(44)	(8)	(20)	3	4	(4)	(4)	1	(6)	3	1	1	0	2	0	1	1	1	(1)	(1)	0	0	0	1	0	0	(71)
Total	(28)	141	97	211	788	183	470	357	536	1276	501	519	13	1560	421	919	247	54	4	2	0	6	36	27	29	217	8589

Table 2-36. District-to-District User Benefits for Journey-at-Work/Non-Work-Based (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	(1085)	(30)	(20)	4	17	(5)	(100)	13	13	16	0	0	0	2	0	0	0	0	0	0	0	0	0	(51)	0	30	(1196)
Kaka'ako	(46)	17	76	9	11	(5)	(20)	1	2	(6)	0	0	0	2	0	0	0	0	0	0	0	0	0	8	0	(4)	46
Mō'ili'ili	(20)	9	47	(1)	18	0	(5)	4	(24)	0	0	0	0	0	2	0	0	31	0	0	0	0	0	2	0	1	63
Waikīkī	(6)	1	5	(8)	242	0	(1)	(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	11	0	252
Kaimukī-Wai'alae	37	14	39	47	766	10	0	1	0	4	0	0	0	0	0	0	0	16	0	0	0	0	0	16	13	0	962
Palama-Liliha	(9)	(8)	(2)	3	23	17	(53)	24	(38)	16	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	(1)	(26)
Kalihi-Iwilei	37	76	18	0	29	40	1185	46	182	98	0	0	0	9	0	0	0	11	0	0	0	0	0	1	0	9	1740
Airport-Pearl Harbor	29	1	5	2	2	71	42	(2141)	453	2	0	0	0	0	3	14	0	0	1	0	0	0	0	0	0	0	(1517)
Salt Lake-Āliamanu	0	20	0	3	0	38	163	470	264	276	0	8	0	17	4	1	0	0	5	(2)	0	0	0	0	0	0	1266
Pearl City-'Aiea	0	38	(10)	0	2	11	48	86	136	1295	(8)	(7)	0	239	(118)	95	1	0	0	0	0	0	0	0	0	0	1807
'Ewa	0	0	0	0	0	0	0	0	2	(2)	213	214	5	242	28	0	0	0	0	0	0	0	0	0	0	0	703
Kapolei	0	0	0	0	0	6	0	0	0	10	233	(408)	53	163	15	8	7	0	0	0	0	0	3	0	0	0	91
Makakilo	0	0	0	0	0	0	0	0	0	0	4	(5)	0	7	0	0	9	0	0	0	0	0	0	0	0	0	14
Waipahu-Waikele	4	2	0	0	0	0	0	6	17	190	249	146	12	967	166	160	29	0	0	0	0	0	0	0	0	0	1948
Waiawa	0	0	0	0	0	0	0	3	0	(31)	0	2	0	223	133	119	29	0	0	0	0	(5)	0	0	0	0	473
Mililani	0	0	0	0	0	0	0	0	0	55	0	6	0	164	116	434	131	0	0	0	0	0	0	0	0	0	905
Wahiawa	0	0	0	0	0	0	0	0	0	14	0	0	0	31	36	118	52	0	0	0	0	0	0	0	0	0	251
East Honolulu	0	0	9	0	63	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	88
Kāne'ohe	0	0	0	0	0	0	(1)	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Kailua	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Ko'olau Loa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Shore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wai'anae	0	0	0	0	1	0	0	0	0	0	0	4	0	(10)	0	0	0	0	0	0	0	0	4	0	0	0	(1)
Makiki-Mānoa	(1)	2	23	20	0	(1)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	(4)	0	44
UH Mānoa	0	0	0	19	25	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	(4)	0	0	44
Ala Moana Center	(35)	(17)	(116)	4	0	4	(4)	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	(145)
Total	(1095)	125	75	102	1200	185	1253	(1484)	1009	1944	690	(37)	70	2056	384	947	257	74	8	(2)	0	(5)	7	(5)	20	35	7814

Table 2-37. District-to-District User Benefits for Non-Work-Related/Home-Based-College (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	(1)	0	(1)	0	(3)	0	(14)	0	0	0	0	16	0	6	0	0	0	1	(1)	0	0	0	0	0	239	0	242
Kaka'ako	(230)	0	7	0	112	0	(118)	0	0	0	0	35	0	(3)	0	0	0	15	(11)	0	(8)	0	0	0	199	0	(2)
Mō'ili'ili	(304)	0	0	0	(16)	0	(74)	0	0	0	0	14	0	17	0	0	0	28	(5)	0	(8)	0	0	0	314	0	(34)
Waikīkī	(259)	0	(5)	0	1231	0	(72)	0	0	0	0	16	0	3	0	0	0	1	(8)	0	(5)	0	0	0	157	0	1060
Kaimukī-Wai'alae	139	0	6	0	153	0	(14)	0	0	0	0	29	0	11	0	0	0	8	2	0	2	0	0	0	225	0	561
Palama-Liliha	(251)	0	(2)	0	1	0	(81)	0	0	0	0	56	0	33	0	0	0	8	(42)	0	(6)	0	0	0	206	0	(78)
Kalihi-Iwilei	(10)	0	1	0	25	0	(1)	0	0	0	0	26	0	23	0	0	0	9	4	0	1	0	0	0	168	0	247
Airport-Pearl Harbor	58	0	(1)	0	19	0	24	0	0	0	0	20	0	70	0	0	0	1	1	0	3	0	0	0	341	0	536
Salt Lake-Āliamanu	(600)	0	12	0	(219)	0	(327)	0	0	0	0	(4)	0	182	0	0	0	1	(33)	0	(49)	0	0	0	(250)	0	(1288)
Pearl City-'Aiea	1260	0	14	0	689	0	555	0	0	0	0	688	0	1471	0	0	0	13	92	0	58	0	0	0	4622	0	9463
'Ewa	408	0	5	0	376	0	569	0	0	0	0	(762)	0	125	0	0	0	8	13	0	49	0	0	0	301	0	1094
Kapolei	229	0	28	0	153	0	263	0	0	0	0	767	0	269	0	0	0	5	7	0	26	0	0	0	348	0	2095
Makakilo	240	0	10	0	188	0	232	0	0	0	0	1173	0	324	0	0	0	0	18	0	16	0	0	0	404	0	2606
Waipahu-Waikele	155	0	5	0	165	0	(12)	0	0	0	0	865	0	679	0	0	0	5	8	0	19	0	0	0	992	0	2882
Waiawa	210	0	5	0	328	0	175	0	0	0	0	451	0	3702	0	0	0	9	22	0	(9)	0	0	0	891	0	5784
Mililani	88	0	1	0	260	0	79	0	0	0	0	656	0	136	0	0	0	8	11	0	(4)	0	0	0	1105	0	2340
Wahiawa	166	0	2	0	124	0	163	0	0	0	0	126	0	0	0	0	0	2	10	0	0	0	0	0	1035	0	1628
East Honolulu	254	0	18	0	331	0	92	0	0	0	0	40	0	26	0	0	0	5	4	0	10	0	0	0	794	0	1573
Kāne'ohe	0	0	(1)	0	0	0	(34)	0	0	0	0	52	0	10	0	0	0	4	0	0	0	0	0	0	16	0	48
Kailua	0	0	0	0	1	0	(39)	0	0	0	0	68	0	14	0	0	0	1	0	0	0	0	0	0	0	0	44
Ko'olau Loa	0	0	0	0	0	0	(2)	0	0	0	0	4	0	1	0	0	0	1	0	0	0	0	0	0	0	0	3
North Shore	13	0	1	0	58	0	10	0	0	0	0	30	0	0	0	0	0	0	1	0	0	0	0	0	413	0	526
Wai'anae	242	0	4	0	188	0	170	0	0	0	0	547	0	269	0	0	0	6	11	0	7	0	0	0	618	0	2063
Makiki-Mānoa	(4)	0	11	0	146	0	(23)	0	0	0	0	26	0	10	0	0	0	11	0	0	(4)	0	0	0	50	0	224
UH Mānoa	1	0	1	0	2	0	1	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	9
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1803	0	123	0	4315	0	1522	0	0	0	0	4940	0	7383	0	0	0	149	105	0	97	0	0	0	13188	0	33625

Table 2-38. District-to-District User Benefits for Non-Work-Related/Home-Based-School (K-12) (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	61	(22)	(5)	(1)	54	(109)	(11)	3	(114)	61	5	0	0	1	0	(1)	0	17	0	0	0	0	0	2	2	0	(58)
Kaka'ako	(19)	2	52	(6)	74	(126)	(26)	(1)	(44)	39	0	0	0	0	0	0	0	43	(1)	(1)	0	0	2	286	6	0	280
Mō'ili'ili	(21)	(41)	(137)	(8)	122	(57)	3	0	(14)	22	2	0	0	0	0	0	0	101	0	(1)	0	0	0	648	108	0	728
Waikīkī	2	28	6	(7)	188	(20)	(6)	(1)	0	14	0	0	0	0	0	0	1	46	(1)	(1)	0	0	0	116	37	0	404
Kaimukī-Wai'alae	14	31	183	81	533	1	13	2	(13)	23	1	1	0	0	0	1	0	343	0	0	0	0	4	93	16	0	1325
Palama-Liliha	(52)	(37)	(14)	(1)	13	5562	(312)	(25)	(29)	188	0	0	0	(1)	3	1	1	17	(26)	(6)	(1)	0	7	0	7	0	5294
Kalihi-Iwilei	(5)	(29)	(2)	3	24	(487)	88	15	(89)	122	0	0	0	5	1	(2)	0	11	2	1	0	0	0	13	2	0	(329)
Airport-Pearl Harbor	3	2	2	0	2	4	18	84	341	598	4	0	0	13	5	2	(1)	2	4	7	4	0	5	4	4	0	1106
Salt Lake-Āliamanu	(33)	(43)	(48)	(6)	(19)	(220)	(145)	1879	4347	(1754)	(3)	2	0	(1)	(16)	(1)	1	(7)	(62)	(54)	(28)	(3)	11	(50)	(29)	0	3715
Pearl City-'Aiea	13	(11)	48	1	14	100	138	220	(41)	7914	77	49	35	672	347	111	45	14	22	16	35	13	73	1	148	0	10055
'Ewa	43	25	129	10	223	204	143	11	88	429	2507	2355	802	259	31	12	(4)	146	16	37	76	11	316	212	68	0	8147
Kapolei	25	50	96	13	125	144	73	51	75	560	1787	3452	646	217	33	25	15	76	12	28	178	19	476	178	217	0	8571
Makakilo	35	78	128	10	143	170	80	70	106	543	635	463	(62)	172	33	28	20	76	16	26	163	26	355	197	265	0	3775
Waipahu-Waikele	64	85	185	22	206	314	80	113	50	253	1927	459	431	2107	748	595	199	139	31	39	344	49	329	257	467	0	9492
Waiawa	32	26	77	10	104	80	19	(2)	4	(509)	259	116	116	1783	420	595	314	56	10	19	(4)	2	105	115	94	0	3841
Mililani	7	55	65	8	68	(3)	27	10	(22)	32	77	45	26	230	725	(1219)	410	44	4	19	1	1	104	97	152	0	965
Wahiawa	10	37	53	7	59	49	8	0	(5)	7	16	7	7	16	76	34	0	35	3	7	0	0	98	47	120	0	690
East Honolulu	23	32	218	5	463	26	20	9	(11)	75	10	2	2	4	2	2	6	1480	3	8	12	2	40	262	87	0	2783
Kāne'ohe	0	(6)	(3)	(5)	18	(113)	(4)	7	(109)	170	5	2	4	1	4	1	7	18	0	0	0	0	31	(1)	1	0	29
Kailua	0	(7)	(4)	(1)	9	(61)	(2)	3	(66)	130	1	3	0	2	0	1	4	16	0	0	0	0	31	0	0	0	59
Ko'olau Loa	0	(1)	(1)	0	7	(2)	0	1	(7)	16	1	0	0	0	0	0	0	4	0	0	0	0	28	(1)	0	0	45
North Shore	(24)	40	48	4	55	(60)	(8)	(2)	(16)	21	7	5	4	2	1	1	0	40	2	8	0	0	31	68	102	0	327
Wai'anae	20	59	95	5	118	112	47	35	55	108	43	60	69	32	4	29	26	109	13	28	52	7	12458	155	212	0	13952
Makiki-Mānoa	1	198	624	(1)	111	(50)	(5)	(1)	(16)	18	0	0	1	0	0	0	1	82	(1)	0	1	0	0	355	35	0	1352
UH Mānoa	0	5	14	(1)	7	4	1	0	1	2	0	0	0	0	0	0	0	7	0	0	0	0	0	31	11	0	83
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	197	554	1811	142	2720	5461	241	2482	4469	9081	7362	7022	2081	5513	2417	215	1045	2915	46	179	833	128	14501	3088	2131	0	76632

Table 2-39. District-to-District User Benefits for Non-Work-Related/Home-Based-Shopping (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	(88)	(26)	(19)	0	4	(3)	(39)	25	(8)	44	0	14	0	4	0	0	0	0	0	0	0	0	0	0	0	122	31
Kaka'ako	(32)	(38)	23	0	13	(4)	(22)	7	13	28	1	6	0	7	0	1	0	0	(1)	(1)	0	0	0	1	(1)	(22)	(22)
Mō'ili'ili	(6)	32	1	0	80	(2)	13	10	(8)	103	0	15	0	22	0	25	0	22	0	0	0	0	0	1	0	5	311
Waikīkī	3	(37)	(73)	0	1575	(1)	14	(40)	(55)	26	13	55	0	13	2	1	0	4	0	0	0	0	0	(3)	31	(45)	1484
Kaimukī-Wai'alae	82	94	191	0	1168	17	110	41	(5)	68	7	61	0	8	0	0	0	19	1	5	0	0	0	56	98	272	2295
Palama-Liliha	(7)	17	(8)	0	44	(100)	(65)	286	232	223	7	34	3	10	1	2	0	0	(1)	0	0	0	0	(1)	(1)	(55)	620
Kalihi-Iwilei	0	16	1	0	2	10	220	60	166	72	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	47	601
Airport-Pearl Harbor	1	2	1	0	1	1	29	92	179	611	0	0	0	5	1	0	16	0	0	0	0	0	0	0	0	8	946
Salt Lake-Āliamanu	(50)	3	0	0	2	13	483	2621	(257)	(1860)	1	35	1	35	2	5	2	(1)	(22)	(2)	(2)	0	0	(1)	1	(1)	1006
Pearl City-'Aiea	19	21	31	0	16	32	199	548	904	12388	40	273	2	576	29	35	35	6	(12)	20	0	1	(7)	2	29	68	15255
'Ewa	2	4	4	0	7	11	28	1	26	61	749	3078	31	1273	32	26	4	0	6	11	0	0	1	1	0	10	5364
Kapolei	(1)	0	0	0	1	1	5	5	2	9	20	(1123)	4	82	8	4	1	0	0	0	2	0	1	0	0	0	(980)
Makakilo	1	1	1	0	1	4	13	21	17	17	50	(1796)	4	105	32	3	1	0	6	0	0	6	1	4	0	13	(1497)
Waipahu-Waikele	2	1	3	0	2	1	16	22	25	329	245	763	23	2372	240	100	13	1	1	0	0	0	(4)	0	0	14	4167
Waiawa	4	16	2	0	14	5	28	106	87	(3151)	(8)	217	16	1175	476	496	85	2	1	1	0	4	0	1	1	8	(415)
Mililani	13	17	7	0	13	7	92	247	124	1225	85	790	20	1111	433	1131	208	5	5	7	0	9	4	0	6	22	5581
Wahiawa	1	(3)	1	0	1	0	14	122	59	397	40	394	2	229	30	319	178	0	0	0	0	0	1	0	0	2	1788
East Honolulu	1	0	5	0	(103)	(1)	0	16	(34)	76	17	112	0	28	0	3	0	8	0	0	0	0	0	1	1	7	139
Kāne'ohe	1	(3)	(1)	0	16	1	22	26	(85)	199	4	67	1	35	0	1	0	0	0	0	0	0	2	0	1	4	291
Kailua	0	(5)	(4)	0	2	(1)	(1)	13	(89)	167	10	124	1	49	0	17	0	1	0	0	0	0	0	1	0	0	284
Ko'olau Loa	0	(4)	(1)	0	3	0	(2)	10	(13)	44	22	120	2	31	(1)	1	0	0	0	0	0	0	2	0	0	0	215
North Shore	0	1	0	0	1	0	20	111	(25)	309	94	664	11	169	(4)	7	1	0	0	0	0	0	1	0	0	0	1359
Wai'anae	34	44	37	0	52	7	134	129	17	181	23	845	13	(2)	106	46	41	8	14	14	1	52	314	7	6	62	2186
Makiki-Mānoa	(10)	(122)	87	0	14	(3)	(7)	29	(40)	56	6	23	2	3	0	1	0	19	0	0	0	0	6	28	4	307	406
UH Mānoa	0	0	1	0	10	0	(1)	1	(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	11
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	(31)	31	287	0	2936	(5)	1303	4511	1233	11624	1428	4775	135	7344	1384	2221	584	94	(1)	55	1	71	323	97	176	850	41426

Table 2-40. District-to-District User Benefits for Non-Work-Related/Home-Based-Other (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	(25)	(43)	(22)	77	161	(13)	41	56	(226)	14	22	8	4	11	1	18	0	3	1	1	0	0	4	(238)	(1)	198	53
Kaka'ako	(161)	(13)	26	35	281	(31)	(53)	34	(64)	47	6	26	0	7	0	20	(1)	52	(5)	(9)	(2)	0	12	47	2	(10)	245
Mō'ili'ili	(62)	144	(2)	122	478	(4)	(22)	31	(222)	45	7	19	7	17	2	2	13	114	(3)	(3)	(1)	0	11	52	2	1	746
Waikīkī	(83)	(65)	(14)	(38)	1539	(6)	(24)	(11)	(153)	199	8	29	4	35	16	7	(1)	91	(1)	(4)	(3)	(1)	8	(4)	43	(16)	1556
Kaimukī-Wai'alae	996	631	1152	1014	1834	272	310	95	53	106	33	40	13	25	9	68	8	264	11	56	13	8	11	487	321	452	8280
Palama-Liliha	(26)	136	11	30	361	650	172	362	83	316	1	49	17	43	0	11	5	72	10	12	1	(1)	3	7	21	(28)	2319
Kalihi-Iwilei	24	171	17	8	134	322	284	115	(100)	52	(10)	13	0	(3)	3	3	0	23	0	0	0	0	0	3	1	136	1198
Airport-Pearl Harbor	143	104	74	37	49	90	215	293	515	548	0	6	(11)	44	10	38	8	11	13	18	0	0	2	12	14	64	2299
Salt Lake-Āliamanu	(1727)	(511)	(260)	(289)	(50)	(246)	914	3664	2909	(1055)	75	32	2	67	35	93	38	(38)	(176)	(179)	(11)	28	35	(192)	(12)	(308)	2835
Pearl City-'Aiea	3401	1175	1049	732	925	1168	2775	4612	3082	11845	247	337	134	1163	416	800	343	178	182	407	186	79	26	416	216	1118	37012
'Ewa	811	546	383	670	530	326	688	188	511	806	3187	3311	259	1834	462	767	345	103	112	334	59	97	103	298	107	346	17181
Kapolei	370	223	214	241	291	161	361	211	275	229	598	(7)	(58)	711	228	386	241	82	74	110	22	53	104	91	94	154	5459
Makakilo	346	240	227	230	262	163	359	315	186	271	361	(229)	19	526	220	301	151	85	59	101	65	12	94	110	56	153	4681
Waipahu-Waikele	376	235	150	226	279	148	182	325	233	1489	838	1541	236	2296	1639	1339	373	54	52	68	31	68	(7)	107	2	194	12475
Waiawa	205	236	60	105	299	91	272	617	422	(232)	105	430	44	2438	836	2037	337	26	21	19	10	10	13	48	16	103	8570
Mililani	791	245	160	152	243	147	470	1018	496	1223	352	785	91	1709	1539	4641	1215	80	59	74	26	15	153	(6)	62	105	15845
Wahiawa	(11)	(20)	7	(8)	142	1	76	606	213	428	106	440	65	383	235	1227	241	6	3	5	0	0	83	0	5	14	4245
East Honolulu	23	(7)	70	238	749	3	42	28	(205)	127	38	73	7	37	2	52	1	109	7	0	0	0	27	13	22	8	1465
Kāne'ohe	16	(27)	(13)	(8)	155	(1)	22	65	(448)	187	67	64	18	53	19	113	1	4	0	1	0	0	23	109	1	12	431
Kailua	(6)	(43)	(22)	(10)	149	(4)	12	25	(595)	239	82	116	14	53	4	30	1	20	0	0	0	0	38	114	0	0	217
Ko'olau Loa	(1)	(12)	(7)	(6)	118	(1)	14	15	(266)	179	36	58	7	32	0	22	0	1	0	0	0	0	20	16	0	0	224
North Shore	0	50	1	1	201	6	66	291	(51)	556	156	352	41	196	62	117	3	1	0	0	0	0	70	0	1	0	2120
Wai'anae	505	346	367	416	700	245	618	307	466	692	88	725	95	(29)	104	618	376	170	96	227	71	56	521	190	106	219	8295
Makiki-Mānoa	(43)	(152)	293	237	431	5	(11)	38	(214)	56	26	13	5	10	2	23	0	11	(1)	(1)	0	0	12	91	(38)	265	1059
UH Mānoa	0	2	1	46	42	(2)	(2)	5	(22)	1	7	0	0	(1)	0	1	0	3	0	0	0	0	4	3	0	0	86
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5861	3589	3920	4258	10302	3493	7778	13306	6878	18368	6434	8232	1013	11657	5844	12736	3697	1524	512	1237	465	425	1371	1773	1042	3182	138896

Table 2-41. District-to-District User Benefits for Non-Work-Related/Non-Home-Based (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	(146)	(40)	(6)	5	24	(5)	(25)	5	(40)	35	6	7	1	11	1	4	(1)	2	0	0	0	(1)	2	(36)	0	37	(159)
Kaka'ako	(53)	(30)	28	12	27	(7)	(10)	3	(18)	17	6	10	1	7	1	5	0	4	(1)	(1)	(1)	1	4	8	0	(10)	4
Mō'ili'ili	(10)	5	14	5	71	(3)	(1)	4	(21)	15	6	8	1	5	0	4	1	4	(1)	(1)	(1)	(1)	4	8	2	2	119
Waikīkī	(1)	(5)	1	(5)	166	(1)	(1)	(4)	(12)	16	8	8	1	11	2	4	0	7	(1)	(1)	0	0	4	7	5	(2)	208
Kaimukī-Wai'alae	19	17	60	46	530	15	10	6	(13)	25	11	16	2	12	2	7	2	36	2	2	1	1	8	22	19	13	871
Palama-Liliha	(5)	1	(1)	2	17	34	4	25	(6)	37	5	8	1	8	1	4	0	0	0	1	0	0	4	1	(1)	(3)	139
Kalihi-Iwilei	23	63	10	3	22	67	712	41	94	85	2	12	1	10	2	8	1	2	1	2	2	1	5	3	2	26	1201
Airport-Pearl Harbor	23	17	5	(2)	8	41	27	(603)	358	35	(1)	1	1	30	17	22	11	1	1	5	0	1	3	2	1	2	7
Salt Lake-Āliamanu	6	(2)	5	0	14	38	125	443	300	95	14	22	4	45	20	35	17	(1)	(4)	(4)	(1)	6	6	1	2	(2)	1183
Pearl City-'Aiea	49	33	16	12	23	41	73	125	58	1804	16	23	3	308	(83)	159	46	8	13	16	10	16	11	8	5	22	2815
'Ewa	8	8	4	8	12	4	5	1	5	19	351	340	9	250	42	48	18	5	6	9	3	9	3	4	2	11	1183
Kapolei	11	10	7	8	16	7	14	3	11	29	278	(455)	(58)	252	75	89	34	6	7	10	5	17	11	4	4	11	406
Makakilo	2	2	1	2	2	2	3	2	3	4	17	(33)	0	34	12	12	4	1	2	2	1	2	4	1	1	3	86
Waipahu-Waikele	16	13	5	10	12	8	9	25	31	229	229	214	27	870	209	256	53	5	10	11	4	14	(2)	4	1	13	2276
Waiawa	2	2	1	1	4	1	2	10	6	(6)	25	59	11	265	154	228	26	0	0	1	0	(1)	5	0	0	0	794
Mililani	4	4	(1)	0	5	1	8	33	19	114	35	72	11	229	185	598	101	1	2	2	2	3	16	(2)	(1)	0	1442
Wahiawa	0	(1)	0	0	3	(1)	1	17	10	42	14	30	5	54	23	134	119	0	0	0	0	0	10	0	0	0	460
East Honolulu	2	1	4	6	41	1	1	1	(9)	11	7	9	1	7	1	5	0	4	0	0	0	0	4	1	2	2	103
Kāne'ohe	0	(1)	(1)	0	4	0	0	2	(22)	18	7	10	1	7	1	5	0	0	0	0	0	0	4	2	0	0	38
Kailua	0	(2)	(1)	(1)	5	0	1	2	(22)	32	14	22	2	13	2	11	0	1	0	0	0	0	9	2	0	0	91
Ko'olau Loa	0	(1)	0	0	2	0	0	1	(9)	13	5	7	1	5	1	3	0	0	0	0	0	0	3	1	0	0	31
North Shore	0	1	0	0	2	0	1	6	(1)	22	12	19	3	15	2	4	0	0	0	0	0	0	4	0	0	0	89
Wai'anae	4	3	2	2	7	3	6	5	4	4	3	19	2	(4)	4	17	8	3	2	4	2	3	52	1	1	4	163
Makiki-Mānoa	(1)	6	29	10	19	(1)	1	2	(11)	8	4	5	1	3	1	3	0	1	0	0	0	0	2	8	(1)	17	104
UH Mānoa	0	0	2	11	27	0	1	1	(4)	2	2	3	1	0	0	4	0	2	0	0	0	0	2	(4)	1	0	50
Ala Moana Center	(21)	(8)	(64)	2	4	(4)	(2)	1	(7)	5	2	2	0	4	0	1	1	1	(1)	(1)	(1)	0	1	4	0	0	(82)
Total	(69)	97	122	138	1067	244	965	155	702	2710	1078	436	34	2452	676	1672	442	94	38	56	26	71	176	47	44	146	13621

Table 2-42. District-to-District User Benefits for Visitors (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ōhe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	(2)	0	0	(2)	1	(1)	0	6	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	(25)	0	31	20
Kaka'ako	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mō'ili'ili	(9)	0	1	(17)	71	0	(66)	3	0	106	0	0	0	0	0	0	0	(58)	0	0	(11)	(26)	0	(4)	0	0	(10)
Waikīkī	(1126)	50	(59)	(250)	10584	(7)	(221)	1034	0	2194	0	0	0	0	0	0	0	5	0	0	(90)	(12)	0	(88)	(259)	(550)	11205
Kaimukī-Wai'alae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Palama-Liliha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kalihi-Iwilei	0	0	0	(1)	1	0	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	(1)	0	7	13
Airport-Pearl Harbor	32	2	6	64	19	4	19	88	0	34	0	0	0	0	0	0	0	20	0	0	1	7	0	2	4	38	339
Salt Lake-Āliamanu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pearl City-'Aiea	0	0	(2)	(1)	0	0	2	11	0	4	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	19
'Ewa	5	1	1	14	1	0	1	2	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	6	33
Kapolei	670	43	125	1489	143	20	174	635	0	124	0	0	0	0	0	0	0	58	0	0	0	23	0	42	43	1477	5065
Makakilo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waipahu-Waikele	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waiawa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mililani	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wahiawa	1	0	0	0	1	0	0	21	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	32
East Honolulu	235	20	77	1465	381	7	32	82	0	38	0	0	0	0	0	0	0	208	0	0	25	26	0	38	41	503	3177
Kāne'ōhe	0	0	0	(3)	1	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	14
Kailua	0	0	0	(1)	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	7
Ko'olau Loa	0	0	0	(7)	2	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	37
North Shore	0	0	0	2	1	0	0	35	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
Wai'anae	78	5	15	191	31	2	20	34	0	6	0	0	0	0	0	0	0	2	0	0	0	0	0	4	5	97	489
Makiki-Mānoa	0	0	0	(22)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(20)
UH Mānoa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	(116)	120	165	2923	11238	25	(40)	1951	0	2567	0	0	0	0	0	0	0	235	0	0	(75)	23	0	14	(167)	1610	20473

Table 2-43. District-to-District User Benefits for Ground Access Air Passengers (in minutes)—2030 TSM Alternative vs. 2030 No Build Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	0	0	0	0	0	0	0	(95)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(95)
Kaka'ako	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mō'ili'ili	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waikīkī	0	0	0	0	0	0	0	(1249)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(1249)
Kaimukī-Wai'alae	0	0	0	0	0	0	0	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
Palama-Liliha	0	0	0	0	0	0	0	(62)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(62)
Kalihi-Iwilei	0	0	0	0	0	0	0	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62
Airport-Pearl Harbor	0	0	0	0	0	0	0	(32)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(32)
Salt Lake-Āliamanu	0	0	0	0	0	0	0	620	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	620
Pearl City-'Aiea	0	0	0	0	0	0	0	497	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	497
'Ewa	0	0	0	0	0	0	0	92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92
Kapolei	0	0	0	0	0	0	0	528	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	528
Makakilo	0	0	0	0	0	0	0	217	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	217
Waipahu-Waikele	0	0	0	0	0	0	0	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155
Waiawa	0	0	0	0	0	0	0	187	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	187
Mililani	0	0	0	0	0	0	0	718	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	718
Wahiawa	0	0	0	0	0	0	0	311	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	311
East Honolulu	0	0	0	0	0	0	0	61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61
Kāne'ohe	0	0	0	0	0	0	0	(31)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(31)
Kailua	0	0	0	0	0	0	0	(31)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(31)
Ko'olau Loa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Shore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wai'anae	0	0	0	0	0	0	0	283	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	283
Makiki-Mānoa	0	0	0	0	0	0	0	(156)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(156)
UH Mānoa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	2109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2109

2.4 Fixed Guideway Airport—First Project vs. TSM Forecasts

Table 2-44 and Table 2-45 below show the district summaries for total transit trips for the First Project Alternative and the percent difference between the First Project and TSM Alternatives to show how transit improvements in the First Project compared to the TSM have changed district-to-district trip movements.

The biggest increases in transit trips from the TSM to the First Project Alternative are in those areas that now have a rail station park-and-ride in the First Project Alternative. The areas that have a significant increase in transit trips include the Waiʻanae, Kapolei, Makakilo, and ʻEwa areas (West Kapolei, UH West Oʻahu park-and-ride), Pearl City, ʻAiea (Aloha Stadium park-and-ride), and Mililani, Wahiawa, and Waiawa areas (Ka ʻUka Boulevard park-and-ride, which is not part of the Project). Ala Moana Center district shows a great increase in transit trips to Downtown, Kakaʻako, Kalihi-Iwilei, and Airport-Pearl Harbor districts (this district had a moderate increase in the *number* of transit trips as shown in Figure 2-40, but had a large *percentage* increase as seen in Figure 2-41).

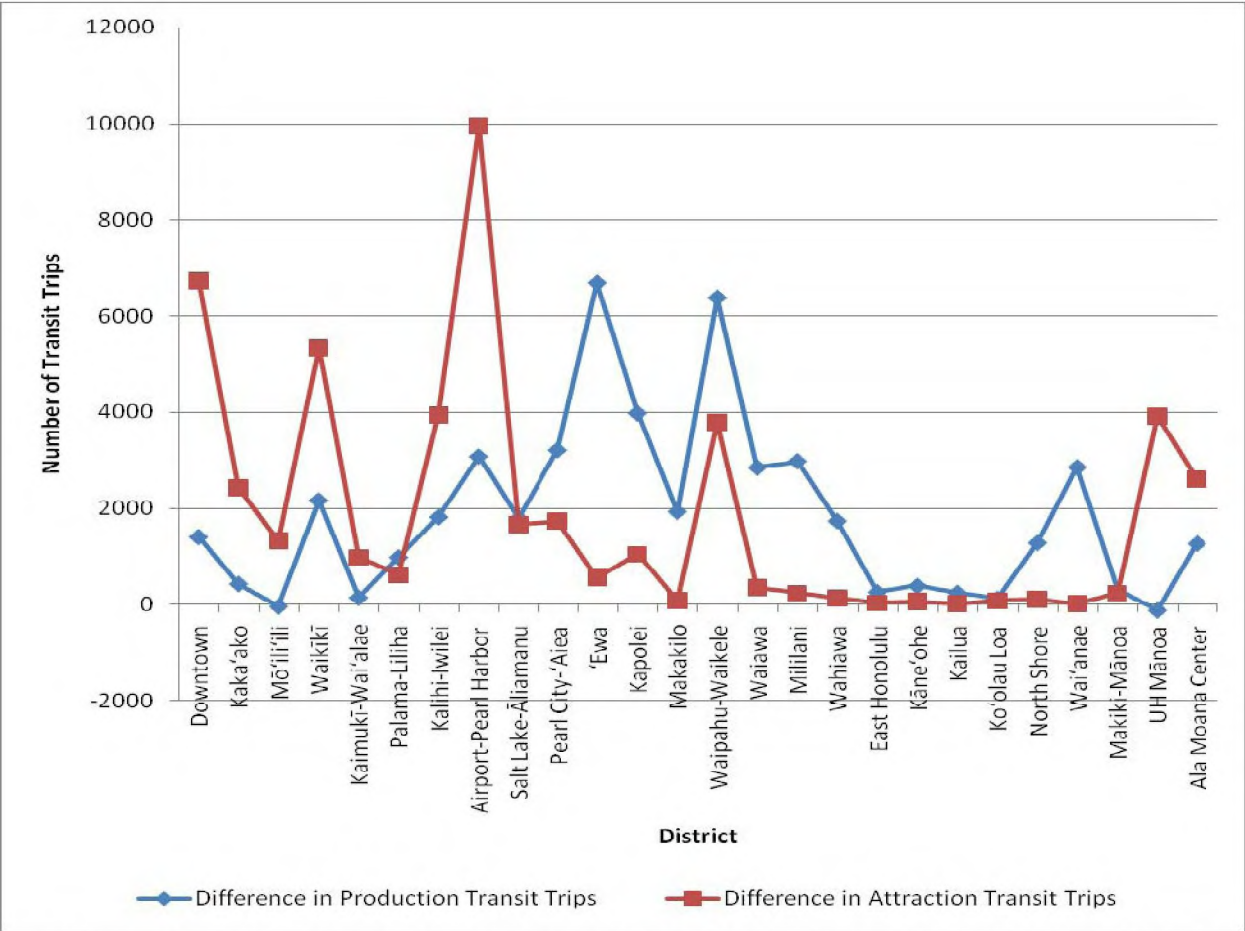


Figure 2-40. Difference in Number of Transit Trips from 2030 TSM to 2030 First Project Alternative “From” Production Districts and “To” Attraction Districts

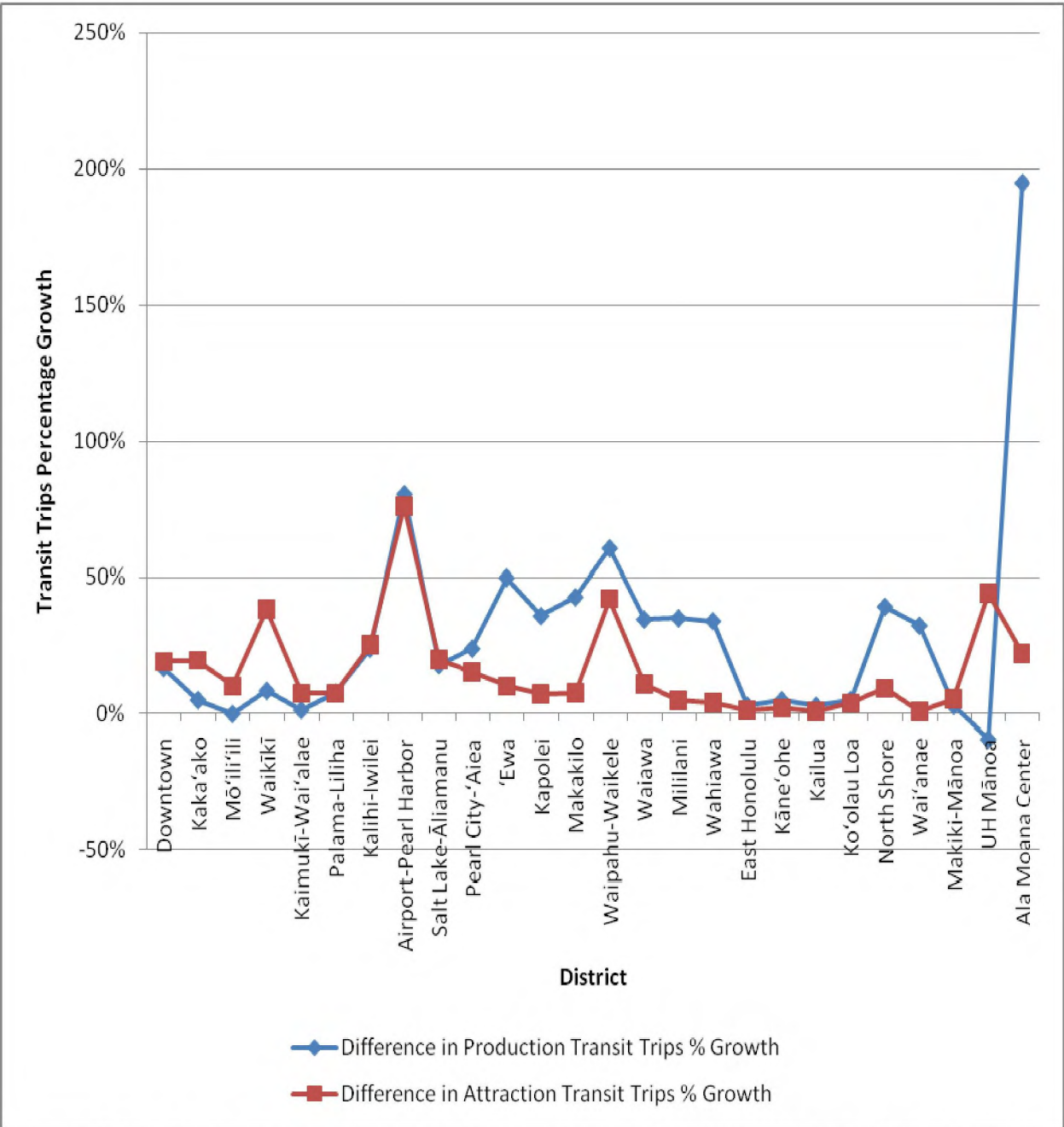


Figure 2-41. Difference in Transit Trips Percentage Growth from 2030 TSM to 2030 First Project Alternative “From” Production Districts and “To” Attraction Districts

Table 2-44. Daily Total Transit Person Trips (Production to Attraction Format)—2030 First Project Airport Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikale	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	1008	858	860	598	458	585	1457	1035	431	233	17	46	2	210	24	18	11	57	67	82	13	2	3	212	363	1138	9790
Kaka'ako	1812	394	791	920	697	560	1270	612	294	155	9	40	1	90	18	14	10	70	47	57	8	3	8	301	448	670	9300
Mō'ili'ili	3908	1394	1054	1204	1688	589	1283	817	327	227	10	43	3	67	18	14	14	220	61	61	24	31	5	498	677	863	15102
Waikīkī	4063	1409	1904	1814	3223	572	1141	4053	184	747	8	38	2	709	13	32	52	859	66	446	124	177	20	760	730	5407	28552
Kaimukī-Wai'alae	2537	947	1695	1660	1843	325	633	301	176	115	10	36	3	50	15	11	7	371	25	78	12	3	3	518	708	748	12830
Palama-Liliha	3509	1122	771	481	379	1444	2271	1117	813	395	17	76	5	177	31	24	17	46	130	110	19	4	4	216	376	513	14068
Kalihi-Iwilei	1992	873	510	359	238	657	1042	1277	620	343	15	60	2	236	35	17	14	52	60	46	7	2	3	119	197	649	9426
Airport-Pearl Harbor	924	212	105	299	303	291	866	1530	414	402	31	66	2	697	83	14	7	14	18	26	9	9	4	23	132	404	6884
Salt Lake-Āliamanu	1710	1257	353	272	206	465	1238	1933	1858	1023	31	120	7	288	78	40	26	20	71	63	20	5	10	77	565	198	11932
Pearl City-'Aiea	1921	533	406	404	271	364	1203	2061	1332	3437	160	526	31	1482	474	254	136	39	119	97	40	15	26	99	1030	234	16693
'Ewa	1887	730	657	1837	459	344	839	1073	505	812	2897	4143	252	1376	145	162	116	78	75	109	82	19	161	188	912	234	20091
Kapolei	1166	391	382	1462	308	196	493	951	276	525	1056	4332	458	783	99	98	77	64	49	63	46	26	408	117	487	742	15055
Makakilo	569	237	218	558	164	126	271	315	176	239	292	1867	254	295	42	48	37	29	30	38	29	6	142	71	301	78	6432
Waipahu-Waikale	1545	428	674	2140	288	242	696	1288	416	1300	1018	1298	110	2522	728	420	198	52	50	62	52	21	62	134	824	333	16900
Waiawa	959	276	432	1247	199	145	410	614	326	1016	233	641	51	1516	896	770	386	35	45	56	39	29	36	79	448	187	11069
Mililani	1243	380	358	397	253	184	505	633	324	674	143	522	31	895	640	1928	1189	40	48	57	47	73	35	86	652	133	11470
Wahiawa	652	237	216	260	156	108	281	351	187	295	74	278	18	370	204	1033	1259	27	32	41	42	105	27	66	411	98	6826
East Honolulu	1606	461	843	827	1525	202	389	251	143	110	15	59	3	49	16	16	10	1567	32	195	20	6	8	270	649	358	9630
Kāne'ohe	1623	389	295	269	198	460	626	429	287	208	21	69	7	99	28	22	15	28	1868	670	148	8	9	75	454	171	8475
Kailua	2220	472	343	298	231	422	539	407	222	184	23	78	5	98	25	22	18	87	545	2162	42	6	11	86	463	192	9201
Ko'olau Loa	244	82	78	130	53	42	85	116	48	51	10	38	2	19	9	12	14	12	74	28	1066	47	2	26	98	99	2484
North Shore	505	209	190	234	128	99	224	235	140	131	31	118	6	135	60	175	290	25	29	32	285	770	14	60	297	105	4528
Wai'anae	1210	496	445	600	310	220	523	894	401	356	165	1715	115	365	80	90	79	55	64	81	24	12	2460	125	562	224	11674
Makiki-Mānoa	2540	905	1063	821	846	461	890	469	223	126	10	35	3	121	13	13	11	87	37	50	12	24	4	527	986	679	10955
UH Mānoa	284	103	139	108	142	38	79	34	22	11	2	3	0	52	1	1	1	21	3	4	1	0	1	58	11	91	1211
Ala Moana Center	685	246	72	98	35	20	354	230	10	21	4	7	0	82	5	1	0	4	2	3	0	0	0	16	13	0	1908
Total	42322	15040	14854	19296	14600	9161	19608	23030	10156	13137	6302	16252	1374	12784	3779	5250	3995	3961	3647	4716	2210	1403	3464	4807	12790	14550	282489

Table 2-45. Percent Growth in Daily Total Transit Person Trips (Production to Attraction Format)—2030 TSM Alternative to 2030 First Project Airport Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	6%	10%	-14%	-8%	-13%	-13%	38%	100%	-4%	6%	38%	26%	6%	276%	47%	-9%	-14%	-9%	-8%	-14%	-4%	-9%	-17%	-8%	3%	94%	17%
Kaka'ako	6%	-31%	-13%	-4%	-6%	1%	15%	63%	10%	10%	19%	24%	33%	131%	21%	5%	2%	-3%	1%	1%	1%	5%	-3%	-2%	6%	29%	5%
Mō'ili'ili	1%	-5%	-12%	-10%	-5%	-3%	4%	60%	3%	18%	7%	13%	18%	42%	-5%	-9%	-13%	-2%	0%	-1%	25%	52%	-12%	-4%	4%	-5%	0%
Waikīkī	-4%	-6%	-5%	-3%	8%	-3%	0%	104%	9%	87%	-7%	7%	14%	1%	8%	-1%	0%	0%	-1%	0%	-6%	-4%	-2%	-7%	1%	-1%	8%
Kaimukī-Wai'alae	2%	2%	-3%	4%	-5%	-1%	4%	43%	10%	17%	13%	21%	28%	78%	7%	-1%	-8%	-5%	2%	-1%	4%	5%	-10%	-3%	1%	0%	1%
Palama-Liliha	4%	10%	4%	10%	1%	-1%	2%	33%	6%	13%	24%	27%	16%	48%	16%	5%	0%	0%	4%	1%	8%	10%	-10%	2%	29%	20%	7%
Kalihi-Iwilei	33%	28%	1%	15%	-4%	-5%	1%	69%	-3%	7%	73%	28%	9%	303%	39%	-3%	-1%	-4%	5%	-1%	11%	0%	-16%	4%	11%	115%	24%
Airport-Pearl Harbor	117%	114%	26%	109%	8%	2%	93%	86%	1%	20%	305%	185%	34%	514%	92%	-10%	-10%	50%	15%	24%	78%	47%	14%	29%	56%	293%	80%
Salt Lake-Āliamanu	20%	12%	24%	57%	14%	11%	19%	20%	4%	6%	41%	57%	53%	60%	23%	9%	5%	12%	24%	24%	26%	15%	15%	21%	59%	34%	18%
Pearl City-'Aiea	49%	72%	56%	99%	53%	32%	45%	34%	15%	-7%	11%	19%	24%	26%	-4%	-4%	-3%	31%	34%	42%	46%	4%	-4%	39%	76%	66%	24%
'Ewa	82%	115%	110%	130%	98%	80%	103%	157%	111%	51%	8%	10%	9%	46%	39%	31%	33%	57%	74%	48%	67%	47%	-2%	67%	187%	80%	50%
Kapolei	79%	116%	90%	122%	98%	70%	72%	165%	95%	65%	6%	-7%	1%	60%	41%	30%	33%	44%	66%	54%	65%	92%	0%	52%	161%	89%	36%
Makakilo	79%	111%	90%	155%	87%	69%	73%	117%	90%	64%	10%	3%	6%	54%	38%	38%	40%	44%	61%	52%	75%	53%	1%	53%	159%	60%	43%
Waipahu-Waikele	92%	107%	120%	164%	87%	68%	149%	248%	76%	26%	9%	15%	7%	20%	34%	2%	7%	44%	56%	45%	46%	21%	-4%	59%	146%	167%	61%
Waiawa	50%	66%	71%	139%	55%	47%	55%	79%	53%	9%	16%	19%	22%	26%	-2%	0%	-2%	29%	47%	38%	20%	8%	4%	36%	78%	84%	35%
Mililani	54%	92%	64%	116%	71%	55%	68%	104%	86%	29%	41%	52%	53%	36%	1%	3%	0%	36%	60%	46%	4%	14%	18%	41%	101%	82%	35%
Wahiawa	59%	79%	57%	99%	57%	47%	67%	98%	79%	33%	50%	61%	59%	44%	2%	8%	3%	28%	38%	26%	1%	9%	23%	26%	87%	68%	34%
East Honolulu	3%	5%	0%	2%	-1%	4%	2%	47%	13%	15%	10%	10%	18%	74%	7%	-4%	-19%	-3%	2%	0%	1%	10%	-24%	1%	12%	0%	3%
Kāne'ohe	0%	12%	6%	14%	1%	1%	2%	39%	12%	17%	9%	17%	17%	81%	9%	1%	-10%	0%	-6%	-2%	0%	4%	-17%	4%	38%	32%	5%
Kailua	-1%	9%	5%	13%	-2%	1%	2%	33%	8%	10%	3%	7%	12%	61%	4%	-4%	-18%	-1%	-3%	-6%	0%	1%	-22%	3%	28%	24%	3%
Ko'olau Loa	2%	7%	11%	9%	3%	0%	3%	54%	8%	18%	0%	-2%	7%	34%	7%	0%	0%	1%	0%	-1%	-3%	0%	-66%	4%	29%	69%	5%
North Shore	59%	72%	61%	99%	57%	45%	49%	98%	66%	42%	37%	41%	31%	68%	18%	12%	14%	28%	15%	24%	1%	9%	13%	32%	103%	65%	39%
Wai'anae	51%	70%	58%	79%	50%	45%	48%	110%	77%	36%	12%	4%	6%	53%	36%	27%	30%	9%	27%	12%	8%	8%	1%	29%	123%	42%	32%
Makiki-Mānoa	4%	3%	-2%	-1%	-2%	0%	5%	37%	12%	15%	8%	22%	15%	21%	0%	-9%	-10%	-2%	0%	1%	3%	1%	-7%	1%	-2%	1%	3%
UH Mānoa	-7%	-6%	-13%	-13%	-16%	-12%	-8%	25%	0%	-3%	-2%	-5%	6%	2%	-11%	-28%	-24%	-3%	-11%	-6%	0%	-17%	-11%	-20%	-25%	-12%	-9%
Ala Moana Center	420%	134%	-27%	-21%	-19%	8%	633%	2342%	13%	220%	405%	335%	21%	6353%	781%	14%	11%	-7%	16%	12%	18%	6%	-10%	-25%	-25%	0%	195%
Total	19%	19%	10%	38%	7%	7%	25%	76%	19%	15%	10%	7%	7%	42%	10%	5%	4%	1%	2%	0%	4%	9%	0%	5%	44%	22%	20%

Table 2-46 shows a comparison between the estimated 2030 First Project Airport Alternative transit trips and estimated 2030 TSM transit trips for select key markets. The number of home-based-work transit trips from the ‘Ewa, Kapolei, Waipahu, and Mililani areas increased over 50 percent. This is reflective of the new park-and-rides in ‘Ewa, Kapolei, and Pearl Highlands (Waipahu and Mililani riders will use this facility). Overall transit trips are increased by 20 percent under the 2030 First Project Airport Alternative compared to the 2030 TSM Alternative.

Table 2-46. 2030 TSM vs. 2030 First Project Transit Trips between Key Markets

Transit Trips in Key Transit Markets	2030 TSM Estimated	2030 First Project Airport Estimated	% Difference
Home-based work to Downtown	18,466	21,944	19%
Visitors from Waikīkī	14,739	16,233	10%
Home-based other to Downtown	6,465	6,765	5%
Home-based work to Waikīkī	6,461	9,858	53%
Home-based work to Kalihi	5,954	7,390	24%
Home-based school to UH Mānoa	5,843	8,205	40%
Home-based work to Kaka‘ako	5,389	6,961	29%
Home-based work to Mō‘ili‘ili	5,260	6,513	24%
Home-based work from ‘Ewa	4,659	8,008	72%
Home-based work from Kapolei	3,236	4,845	50%
Home-based work from Waipahu	3,093	5,315	72%
Home-based work from Mililani	2,845	4,454	57%
Subtotal	82,411	106,490	29%
Other transit trips	152,126	175,999	16%
Total Transit Trips	234,537	282,489	20%

Table 2-47 shows the comparison of estimated transit trips between 2030 TSM Alternative versus 2030 First Project Airport Alternative by mode. The estimated residential walk access transit trips for the 2030 First Project Airport Alternative was 12.25 percent higher than the 2030 TSM Alternative. The estimated residential drive access transit trips for 2030 First Project Airport increased almost twofold compared to the 2030 TSM Alternative. This is due in part to the new designated park-and-rides in the First Project Airport Alternative. The estimated visitor transit trips increased by over 16 percent in the 2030 First Project Airport Alternative compared to the 2030 TSM Alternative. The estimated air passenger walk access transit trips increased by almost threefold in the 2030 First Project Airport Alternative compared to the TSM.

Table 2-47. 2030 TSM Estimated vs. 2030 First Project Airport Estimated Transit Trips by Mode

Type	2030 TSM Estimated	2030 First Project Airport Estimated	% Difference
Resident walk access transit trips	195,583	219,549	12.25%
Resident drive access transit trips	17,453	35,946	105.96%
Visitor walk access trips	20,244	23,511	16.14%
Air passenger walk access trips	1,259	3,482	176.57%
Total	234,539	282,489	20.44%

Table 2-48 shows that there is just over 1 percent more local bus boardings in the 2030 First Project Airport Alternative compared to the 2030 TSM Alternative. There is a 57.76-percent decrease in express bus boardings in the 2030 First Project Airport Alternative compared to the 2030 TSM. The decrease in express bus boardings was because many of the express buses were turned into feeder buses (local buses) that served the nearest rail station. The First Project Airport Alternative is expected to have 116,340 rail boardings. Overall, there are 35.21 percent more total boardings in the 2030 First Project Airport Alternative compared to the 2030 TSM Alternative.

Table 2-48. 2030 TSM Estimated vs. 2030 First Project Airport Boardings by Route Type

Route type	2030 TSM Estimated	2030 First Project Airport Estimated	% Difference
Local bus	330,415	335,016	1.39%
Express bus	4,844	2,046	-57.76%
Ferry	113	57	-49.56%
Fixed guideway	0	116,340	n/a
Total	335,372	453,459	35.21%

2.4.1 Mode Choice Aggregate Summary

Table 2-49 shows the mode choice results for the 2030 First Project Airport Alternative model run. 74 percent of all trips are made by private vehicles (single, 2, and 3+ occupants), while 7.1 percent of all trips are made by transit (express, local, fixed-guideway, park-and-ride, or kiss-and-ride). 14.9 percent of the trips are made with the auxiliary mode (walk and bike), while the remaining (4 percent) are made by taxi, shuttle, or tour bus. The journey-to-work/home-based-work trip purpose shows that 17.3 percent of the trips are made by transit. Home-based college also shows a high percentage of trips made by transit (29.9 percent). These purposes, which most often occur during the peak periods, show a much higher percentage of trips on transit compared to the overall percentage of just 7.1 percent, which shows that the Fixed Guideway Alternative provides a convenient option when the roads are congested during the peak periods.

Table 2-49. 2030 First Project Airport Alternative Mode Choice Summary Results by Trip Purpose

Mode	Purpose													Total
	Journey-to-Work / Home-Based-Work	Journey-to-Work / Home-Based-Other	Journey-to-Work / Work-Based	Journey-to-Work / Non-Home-Based	Journey-at-Work / Work-Based	Journey-at-Work / Non-Home-Based	Non-Work-Related / Home-Based-College	Non-Work-Related / Home-Based-School (K-12)	Non-Work-Related / Home-Based-Shopping	Non-Work-Related / Home-Based-Other	Non-Work-Related / Non-Home-Based	Visitor	Ground Access Air Passenger	
Single-occupant vehicle	361667	75114	125050	26521	112656	31141	8980	83692	258585	111870	157780	26814	1379871	361667
	55.7%	37.1%	64.5%	32.1%	51.3%	45.3%	3.1%	29.1%	27.0%	22.2%	36.6%	25.8%	34.6%	55.7%
Double-occupant vehicle	92200	67792	33115	30716	30020	6549	70657	91926	290380	174809	0	0	888166	92200
	14.2%	33.4%	17.1%	37.2%	13.7%	9.5%	24.5%	32.0%	30.3%	34.6%	0.0%	0.0%	22.3%	14.2%
Three-or-more occupant vehicle	21738	40772	9307	14671	11644	1863	112678	67912	241604	161934	0	0	684123	21738
	3.4%	20.1%	4.8%	17.8%	5.3%	2.7%	39.1%	23.6%	25.2%	32.1%	0.0%	0.0%	17.1%	3.4%
Walk to express transit	944	88	58	144	0	28	43	0	0	0	0	0	1305	944
	0.1%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Walk to local bus transit	50101	4751	7104	5377	0	8711	16897	10393	29493	4500	15412	940	153680	50101
	7.7%	2.3%	3.7%	6.5%	0.0%	12.7%	5.9%	3.6%	3.1%	0.9%	3.6%	0.9%	3.9%	7.7%
Walk to fixed guideway transit	35281	2023	5912	2031	12154	8303	3734	1577	8946	957	8099	2542	91558	35281
	5.4%	1.0%	3.1%	2.5%	5.5%	12.1%	1.3%	0.5%	0.9%	0.2%	1.9%	2.4%	2.3%	5.4%
Park-and-ride transit	14467	243	0	0	0	1618	264	480	807	0	0	0	17878	14467
	2.2%	0.1%	0.0%	0.0%	0.0%	2.4%	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.4%	2.2%
Kiss-and-ride transit	11296	391	1	11	0	1873	1746	845	1900	5	0	0	18068	11296
	1.7%	0.2%	0.0%	0.0%	0.0%	2.7%	0.6%	0.3%	0.2%	0.0%	0.0%	0.0%	0.5%	1.7%
Auxiliary walk	49498	9686	12371	2995	51097	4454	63665	28258	113967	48433	163599	0	548025	49498
	7.6%	4.8%	6.4%	3.6%	23.3%	6.5%	22.1%	9.8%	11.9%	9.6%	38.0%	0.0%	13.7%	7.6%
Auxiliary bike	11624	1810	853	31	2073	4134	9348	2268	12645	2510	0	0	47297	11624
	1.8%	0.9%	0.4%	0.0%	0.9%	6.0%	3.2%	0.8%	1.3%	0.5%	0.0%	0.0%	1.2%	1.8%
Taxi	0	0	0	0	0	0	0	0	0	0	9520	15813	25333	0
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%	15.2%	0.6%	0.0%
Shuttle/tour bus	0	0	0	0	0	0	0	0	0	0	76172	57765	133937	0
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.7%	55.6%	3.4%	0.0%
Total	648816	202670	193772	82498	219645	68674	288013	287351	958327	505019	430582	103874	3989241	648816

2.4.2 Comparison of 2030 TSM and 2030 First Project Airport District Level Transit Mode Shares

Table 2-50 and Table 2-51 display the district-to-district transit mode share for the 2030 First Project Airport Alternative and the difference between 2030 First Project Airport Alternative and the 2030 TSM. The First Project Airport Alternative's overall transit mode share is 7 percent, which is slightly higher than the 2030 TSM Alternative's overall transit mode share. There are slight increases in the First Project transit mode shares from Wai'anae, Kapolei-'Ewa, Waipahu, Mililani, Pearl City-'Aiea, and Waiawa, since these areas have additional rail park-and-ride lots. The Airport-Pearl Harbor and Ala Moana Center districts also show increases in transit mode share as these areas are directly served by the rail system which provides frequent on-time service. These results are graphically displayed in Figure 2-42.

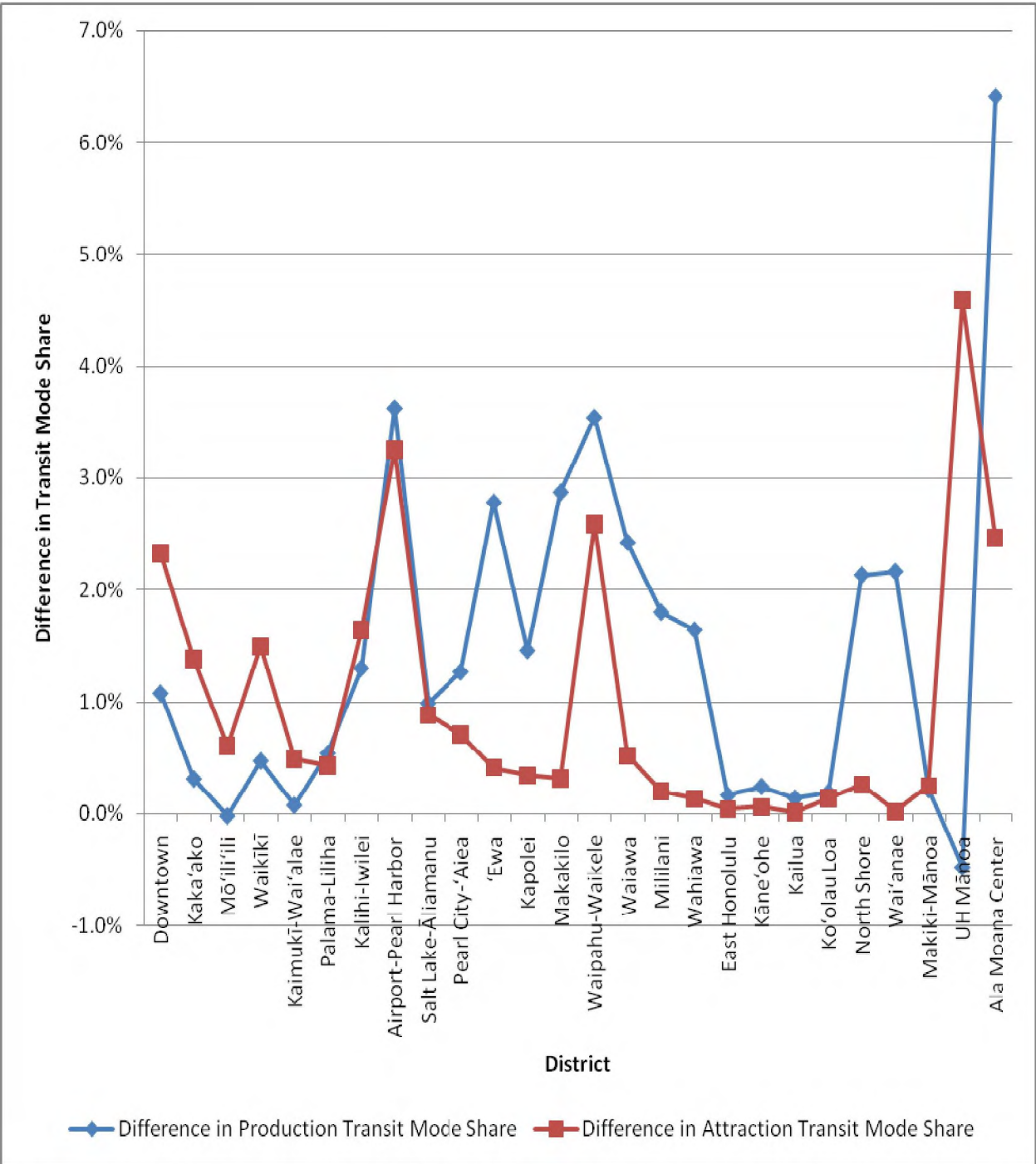


Figure 2-42. Difference in Transit Mode Shares between 2030 First Project Airport Alternative and 2030 TSM Alternative

Table 2-50. 2030 First Project Alternative District-to-District Transit Mode Share

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'i	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	2%	5%	9%	13%	11%	6%	9%	22%	12%	13%	8%	8%	3%	48%	11%	6%	4%	7%	11%	7%	8%	2%	2%	7%	20%	40%	8%
Kaka'ako	7%	1%	4%	11%	14%	10%	14%	16%	13%	14%	6%	9%	3%	27%	13%	7%	5%	9%	10%	7%	7%	4%	7%	6%	19%	7%	7%
Mō'ili'i	19%	7%	2%	5%	10%	11%	15%	10%	12%	13%	6%	9%	6%	17%	10%	6%	7%	9%	12%	7%	5%	7%	3%	4%	9%	5%	7%
Waikīkī	14%	13%	8%	1%	12%	17%	10%	6%	14%	11%	5%	8%	4%	75%	9%	15%	22%	6%	19%	47%	2%	3%	13%	6%	12%	15%	6%
Kaimukī-Wai'alae	18%	10%	8%	8%	3%	6%	8%	6%	5%	7%	4%	6%	4%	10%	7%	4%	3%	6%	5%	7%	6%	2%	2%	6%	7%	17%	7%
Palama-Liliha	13%	9%	9%	11%	7%	4%	6%	9%	6%	8%	7%	10%	8%	17%	8%	6%	5%	5%	6%	5%	9%	3%	2%	5%	15%	20%	8%
Kalihi-Iwilei	11%	11%	10%	11%	8%	4%	2%	13%	6%	8%	5%	6%	2%	32%	9%	3%	3%	8%	5%	4%	3%	2%	2%	6%	16%	48%	7%
Airport-Pearl Harbor	23%	13%	7%	9%	18%	11%	12%	4%	3%	7%	10%	8%	3%	42%	10%	3%	2%	2%	3%	2%	2%	3%	2%	3%	18%	40%	8%
Salt Lake-Āliamanu	18%	23%	9%	10%	7%	6%	7%	6%	3%	6%	5%	7%	4%	10%	6%	4%	3%	3%	4%	3%	5%	2%	3%	5%	22%	21%	7%
Pearl City-'Aiea	23%	13%	11%	13%	9%	7%	10%	8%	5%	3%	7%	7%	5%	9%	6%	5%	5%	5%	6%	4%	6%	3%	4%	7%	28%	25%	7%
'Ewa	41%	27%	25%	35%	19%	15%	17%	11%	9%	7%	3%	6%	7%	9%	7%	6%	4%	11%	8%	6%	8%	4%	6%	14%	31%	38%	8%
Kapolei	17%	20%	13%	6%	7%	12%	11%	5%	9%	7%	6%	3%	6%	11%	7%	5%	4%	2%	7%	5%	2%	1%	9%	4%	23%	12%	6%
Makakilo	42%	30%	27%	36%	21%	17%	19%	12%	11%	8%	8%	7%	2%	11%	8%	6%	5%	13%	11%	7%	10%	4%	7%	16%	33%	43%	10%
Waipahu-Waikele	37%	21%	23%	30%	14%	10%	16%	16%	7%	6%	8%	7%	6%	4%	8%	6%	5%	9%	6%	5%	6%	4%	5%	11%	31%	46%	9%
Waiawa	33%	20%	23%	28%	16%	10%	13%	10%	7%	7%	8%	9%	7%	9%	4%	7%	6%	10%	8%	6%	9%	6%	6%	12%	31%	37%	9%
Mililani	22%	19%	19%	21%	14%	10%	13%	9%	6%	6%	6%	8%	5%	9%	6%	3%	5%	8%	6%	4%	6%	6%	4%	10%	29%	29%	7%
Wahiawa	26%	21%	20%	21%	15%	12%	14%	7%	8%	8%	6%	8%	6%	10%	6%	5%	3%	7%	7%	5%	7%	6%	3%	13%	31%	33%	6%
East Honolulu	15%	7%	7%	7%	6%	5%	6%	3%	5%	6%	6%	7%	4%	9%	6%	5%	3%	4%	4%	6%	4%	2%	4%	5%	11%	10%	6%
Kāne'ohe	19%	9%	9%	8%	7%	6%	6%	5%	4%	5%	5%	6%	5%	9%	6%	4%	3%	4%	3%	4%	12%	3%	3%	5%	17%	14%	5%
Kailua	18%	10%	9%	8%	7%	7%	8%	6%	5%	6%	4%	5%	4%	9%	5%	3%	3%	5%	5%	2%	6%	2%	3%	5%	18%	14%	5%
Ko'olau Loa	12%	12%	9%	2%	4%	8%	7%	2%	6%	5%	5%	6%	3%	6%	6%	4%	5%	1%	9%	4%	3%	3%	1%	3%	12%	6%	4%
North Shore	30%	21%	19%	13%	12%	13%	16%	10%	9%	9%	7%	8%	5%	12%	8%	6%	6%	6%	7%	4%	7%	3%	4%	11%	24%	22%	8%
Wai'anae	34%	27%	23%	14%	15%	17%	20%	14%	13%	13%	7%	7%	5%	14%	10%	5%	3%	6%	9%	6%	2%	2%	4%	12%	27%	18%	9%
Makiki-Mānoa	15%	7%	5%	9%	9%	6%	10%	10%	8%	9%	8%	9%	8%	29%	10%	7%	8%	6%	7%	6%	8%	25%	5%	3%	10%	11%	8%
UH Mānoa	14%	8%	4%	6%	4%	5%	7%	6%	5%	4%	3%	2%	1%	36%	2%	1%	2%	5%	3%	2%	2%	0%	2%	3%	0%	16%	5%
Ala Moana Center	40%	9%	1%	4%	4%	5%	54%	126%	5%	17%	11%	9%	1%	200%	23%	2%	1%	3%	3%	2%	1%	2%	1%	3%	4%	0%	10%
Total	15%	9%	7%	5%	7%	6%	8%	8%	5%	5%	5%	5%	5%	9%	5%	5%	4%	5%	4%	3%	4%	3%	5%	5%	15%	14%	7%

Table 2-51. Difference in District-to-District Transit Mode Share—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waiekele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	0.1%	0.5%	-1.5%	-1.2%	-1.7%	-0.9%	2.4%	11.2%	-0.4%	0.7%	2.3%	1.7%	0.2%	35.2%	3.7%	-0.6%	-0.7%	-0.7%	-1.0%	-1.1%	-0.4%	-0.2%	-0.5%	-0.6%	0.5%	19.3%	1.1%
Kaka'ako	0.4%	-0.5%	-0.6%	-0.4%	-0.8%	0.1%	1.9%	6.1%	1.2%	1.3%	0.9%	1.8%	0.6%	15.6%	2.2%	0.3%	0.1%	-0.3%	0.1%	0.0%	0.1%	0.2%	-0.2%	-0.1%	1.0%	1.7%	0.3%
Mō'ili'ili	0.1%	-0.3%	-0.3%	-0.5%	-0.6%	-0.4%	0.6%	3.6%	0.4%	1.9%	0.4%	1.0%	0.9%	5.1%	-0.5%	-0.6%	-1.0%	-0.2%	0.0%	0.0%	0.9%	2.4%	-0.4%	-0.2%	0.4%	-0.3%	0.0%
Waikīkī	-0.6%	-0.8%	-0.4%	0.0%	0.9%	-0.5%	0.0%	3.0%	1.2%	5.1%	-0.4%	0.6%	0.4%	0.6%	0.7%	-0.1%	-0.1%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.3%	-0.4%	0.1%	-0.1%	0.5%
Kaimukī-Wai'alae	0.4%	0.2%	-0.2%	0.3%	-0.2%	0.0%	0.3%	1.8%	0.5%	1.0%	0.5%	1.0%	0.8%	4.4%	0.4%	0.0%	-0.2%	-0.3%	0.1%	-0.1%	0.2%	0.1%	-0.2%	-0.2%	0.1%	0.0%	0.1%
Palama-Liliha	0.5%	0.8%	0.4%	1.0%	0.1%	0.0%	0.1%	2.3%	0.4%	0.9%	1.2%	2.0%	1.0%	5.6%	1.1%	0.3%	0.0%	0.0%	0.3%	0.0%	0.7%	0.3%	-0.3%	0.1%	3.4%	3.3%	0.5%
Kalihi-Iwilei	2.7%	2.3%	0.1%	1.5%	-0.3%	-0.2%	0.0%	5.2%	-0.2%	0.5%	2.0%	1.4%	0.2%	24.2%	2.4%	-0.1%	0.0%	-0.3%	0.3%	0.0%	0.3%	0.0%	-0.3%	0.2%	1.6%	25.6%	1.3%
Airport-Pearl Harbor	12.6%	6.9%	1.4%	4.7%	1.3%	0.2%	5.6%	2.1%	0.0%	1.2%	7.2%	5.0%	0.7%	35.3%	4.6%	-0.3%	-0.2%	0.8%	0.4%	0.3%	1.0%	0.9%	0.2%	0.7%	6.4%	30.0%	3.6%
Salt Lake-Āliamanu	3.0%	2.5%	1.8%	3.6%	0.9%	0.6%	1.1%	1.0%	0.1%	0.3%	1.5%	2.5%	1.5%	3.8%	1.0%	0.3%	0.2%	0.3%	0.8%	0.5%	1.1%	0.3%	0.4%	0.9%	8.2%	5.4%	1.0%
Pearl City-'Aiea	7.5%	5.5%	4.1%	6.5%	3.1%	1.7%	3.1%	2.1%	0.7%	-0.2%	0.7%	1.2%	1.0%	1.8%	-0.3%	-0.2%	-0.1%	1.2%	1.5%	1.1%	2.0%	0.1%	-0.1%	1.9%	11.9%	10.0%	1.3%
'Ewa	18.4%	14.7%	13.2%	19.5%	9.3%	6.6%	8.7%	6.4%	4.7%	2.4%	0.2%	0.6%	0.5%	2.8%	1.9%	1.3%	1.1%	4.0%	3.5%	2.1%	3.4%	1.3%	-0.1%	5.8%	20.2%	16.9%	2.8%
Kapolei	7.4%	10.5%	6.1%	3.4%	3.4%	5.0%	4.6%	3.0%	4.4%	2.8%	0.3%	-0.2%	0.0%	4.0%	1.9%	1.1%	1.0%	0.6%	2.6%	1.7%	0.7%	0.5%	0.0%	1.4%	14.1%	5.5%	1.5%
Makakilo	18.8%	15.7%	12.9%	22.2%	9.9%	7.0%	8.0%	6.4%	5.1%	3.2%	0.7%	0.2%	0.1%	3.9%	2.1%	1.8%	1.6%	3.9%	4.0%	2.5%	4.1%	1.4%	0.0%	5.7%	20.2%	16.3%	2.9%
Waipahu-Waiekele	17.7%	10.6%	12.7%	18.8%	6.7%	4.1%	9.8%	11.2%	2.8%	1.3%	0.6%	1.0%	0.4%	0.7%	2.0%	0.1%	0.3%	2.7%	2.2%	1.5%	2.0%	0.7%	-0.2%	4.1%	18.1%	28.8%	3.5%
Waiawa	11.1%	7.9%	9.7%	16.5%	5.6%	3.2%	4.8%	4.4%	2.5%	0.6%	1.2%	1.4%	1.3%	1.9%	-0.1%	0.0%	-0.1%	2.3%	2.5%	1.8%	1.5%	0.4%	0.2%	3.2%	13.6%	17.0%	2.4%
Mililani	7.8%	9.2%	7.5%	11.5%	6.0%	3.6%	5.1%	4.4%	3.0%	1.3%	1.8%	2.6%	1.8%	2.3%	0.0%	0.1%	0.0%	2.1%	2.3%	1.4%	0.2%	0.7%	0.6%	2.9%	14.7%	13.2%	1.8%
Wahiawa	9.8%	9.5%	7.3%	10.4%	5.4%	3.8%	5.8%	3.6%	3.7%	1.9%	2.1%	3.0%	2.2%	3.0%	0.1%	0.4%	0.1%	1.6%	1.8%	1.0%	0.1%	0.5%	0.6%	2.7%	14.5%	13.3%	1.6%
East Honolulu	0.5%	0.3%	0.0%	0.1%	0.0%	0.2%	0.1%	1.1%	0.5%	0.7%	0.5%	0.7%	0.6%	3.9%	0.4%	-0.2%	-0.7%	-0.1%	0.1%	0.0%	0.0%	0.2%	-1.1%	0.1%	1.1%	0.0%	0.2%
Kāne'ohe	-0.1%	1.0%	0.5%	0.9%	0.1%	0.1%	0.1%	1.4%	0.4%	0.7%	0.5%	0.8%	0.8%	3.9%	0.5%	0.0%	-0.4%	0.0%	-0.2%	-0.1%	0.0%	0.1%	-0.7%	0.2%	4.8%	3.4%	0.2%
Kailua	-0.2%	0.9%	0.4%	1.0%	-0.1%	0.1%	0.2%	1.6%	0.4%	0.5%	0.1%	0.3%	0.4%	3.5%	0.2%	-0.1%	-0.7%	0.0%	-0.1%	-0.1%	0.0%	0.0%	-0.7%	0.2%	3.9%	2.8%	0.1%
Ko'olau Loa	0.3%	0.8%	0.9%	0.2%	0.1%	0.0%	0.2%	0.7%	0.4%	0.8%	0.0%	-0.1%	0.2%	1.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	-1.7%	0.1%	2.8%	2.4%	0.2%
North Shore	11.0%	8.7%	7.1%	6.4%	4.5%	4.1%	5.2%	4.9%	3.6%	2.6%	1.9%	2.5%	1.2%	5.0%	1.3%	0.7%	0.7%	1.3%	0.9%	0.8%	0.1%	0.2%	0.4%	2.7%	12.4%	8.5%	2.1%
Wai'anae	11.6%	11.1%	8.4%	6.1%	5.0%	5.2%	6.6%	7.2%	5.6%	3.6%	0.7%	0.3%	0.3%	4.8%	2.7%	1.2%	0.7%	0.5%	2.0%	0.6%	0.2%	0.1%	0.0%	2.7%	14.9%	5.4%	2.2%
Makiki-Mānoa	0.5%	0.2%	-0.1%	-0.1%	-0.2%	0.0%	0.5%	2.6%	0.8%	1.2%	0.6%	1.6%	1.1%	5.0%	0.0%	-0.7%	-0.8%	-0.1%	0.0%	0.1%	0.2%	0.2%	-0.4%	0.0%	-0.2%	0.1%	0.2%
UH Mānoa	-1.0%	-0.6%	-0.6%	-0.8%	-0.8%	-0.7%	-0.6%	1.2%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	0.8%	-0.2%	-0.6%	-0.7%	-0.2%	-0.3%	-0.1%	0.0%	-0.1%	-0.2%	-0.7%	0.0%	-2.3%	-0.5%
Ala Moana Center	32.5%	5.2%	-0.4%	-1.2%	-1.0%	0.4%	46.8%	120.4%	0.6%	11.9%	8.9%	7.2%	0.2%	196.8%	20.2%	0.3%	0.1%	-0.3%	0.4%	0.2%	0.2%	0.1%	-0.1%	-0.9%	-1.3%	0.0%	6.4%
Total	2.3%	1.4%	0.6%	1.5%	0.5%	0.4%	1.6%	3.3%	0.9%	0.7%	0.4%	0.3%	0.3%	2.6%	0.5%	0.2%	0.1%	0.0%	0.1%	0.0%	0.1%	0.3%	0.0%	0.2%	4.6%	2.5%	1.2%

2.4.3 User Benefits Analysis—First Project Airport Alternative vs. TSM Alternative

Transit user benefits are the incremental cost per hour for a user. User benefits maps are used to show which areas would gain or lose utility from a project. Transit user benefits generally represent the amount of travel-time savings a transit user will experience with a given transit alternative compared to a baseline alternative. Positive user benefits result from improved speed or financial savings to travelers who would use a transit system with those improvements. For example, if transit priority measures increase transit speeds, transit users benefit from travel time savings.

Through research and industry applications, it has been identified that there are additional benefits of a fixed guideway system that are not evidenced in other transit modes. Research has indicated that there are positive attributes, both perceived and real, that are associated with use of a fixed guideway system and make the system relatively more attractive than general bus transit. These benefits include such things as improved safety, security, visibility, hours of operation, comfort, and reliability and are not captured by the standard travel demand forecasting process; hence they have been termed “non-included” attributes. To account for these attributes in this analysis, FTA has approved an additional factor equivalent to a 14.5-minute savings of in-vehicle time. The factor was only incorporated for riders taking the fixed guideway based on the experience in several regions where existing rail transit service is part of the transit system and where these systems have been recently surveyed. A 5.5-minute savings of in-vehicle time was incorporated for riders using feeder buses to the fixed guideway.

This section assesses the transit user benefits results for the First Project Airport Alternative compared to the TSM Alternative. It describes the system- and district-level summaries of user benefits and the winners and losers analysis.

System- and District-Level Summaries

Table 2-52¹⁰ shows that the journey-to-work/home-based-work, non-work-related/home-based-other, and home-based-college comprised nearly 71 percent (48.91, 11.01, and 10.81 percent, respectively) of the total user benefits (2,790,009 capped) between the First Project and TSM Alternatives. Each of the 176,502 existing riders accrue 11.55 minutes of user benefits, while each of the 61,511 new riders accrue 18.32 minutes of user benefits.

¹⁰ Note also that the total transit trips in Table 2-52 differs from the transit trips displayed in earlier sections. This is because the visitor model has an observed fixed transit trip table that does not accrue user benefits. Also, in comparing the fixed guideway alternative with the TSM alternative, the Journey at Work purpose was replaced with the Non-Home-Based Direct demand model results.

Figure 2-43¹¹ shows the overall user benefits visine plot for all trip purposes combined and for all benefits from production and to attraction zones. All of the zones show either positive benefits (green) or marginal/negligible benefits (white). This is particularly true along the rail corridor and the Leeward and Central end of the island where traffic into the Downtown area is most congested.

Figure 2-44 shows that the overall user benefits for trips produced from each of the zones are occurring throughout the transit corridor. There are more dark positive green benefits along the corridor compared to Figure 2-43, which shows the benefits for both from zones and to zones.

Figure 2-45 shows the user benefits for trips attracted to each of the zones. This figure shows that most of the benefits are in the Downtown area or areas with major employment, like the Waikīkī, Airport, Pearl Harbor, and Kapolei (“second city”) areas.

Figure 2-46 through Figure 2-69 show the user benefits by trip purpose from and to each of the zones. The two purposes—journey-to-work/home-based-work and non-work-related/home-based-other—comprise almost 60 percent of the total benefits.

Table 2-53 shows the overall total user benefits in district-to-district format. Areas receiving consistent benefits for the build options are within the corridor. As productions of trips, the greatest benefits are seen for ‘Aiea, Pearl City, Waipahu, Kapolei, ‘Ewa, Mililani, Waiawa, and Wai‘anae. Since these areas are the most densely populated and are heavily residential, this is a good indication that the First Project Alternative provides good service from these areas. As trip attractions, the Downtown, Waikīkī, Airport-Pearl Harbor, and Kalihi-Iwilei areas have the greatest user benefits. Therefore, it is apparent that the First Project Alternative, in particular, will provide substantial user benefits where the benefits are needed. Table 2-54 through Table 2-65 show the district-to-district user benefits by trip purpose.

¹¹ The user benefits measure is presented in minutes on these maps. Areas that experience positive user benefits as a result of the alternative considered are shown in shades of green. Three shades of green are presented to illustrate significant benefits which are the top 40% of all zones with positive benefits (in dark green), medium benefits representing the next 30% of zones with positive benefits (in medium green) and small but non-trivial benefits representing the next 10% of zones with positive benefits (in light green). All remaining zones with positive benefits are shown in white. These are considered marginal or negligible benefits. Likewise, zones with negative user benefits are shown with three shades of red. The three shades of red illustrate significant negative benefits in dark red, medium negative benefits in medium red, and small but non-trivial benefits in light red. Zones with negligible or trivial disbenefits are shown in white. The breakpoints for the negative user benefits are established by using the corresponding breakpoints for the positive benefits.

Table 2-52. User Benefits Information Comparing 2030 First Project Airport Alternative vs. 2030 TSM Alternative

Description	Journey to Work/Home-Based-Work	Journey-to-Work/Home-Based-Other	Journey-to-Work/Work-Based	Journey-to-Work/Non-Home-Based	Journey-at-Work/Work-Based	Journey-at-Work/Non-Home-Based	Non-Work-Related/Home-Based-College	Non-Work-Related/Home-Based-School (K-12)	Non-Work-Related/Home-Based-Shopping	Non-Work-Related/Home-Based-Other	Non-Work-Related/Non-Home-Based	Visitor	Ground Access Air-Passenger
Total user benefits	1,537,592	60,243	135,484	36,889	197,982	331,789	231,261	92,684	293,844	33,659	132,457	70,828	3,154,712
Capped user benefits	1,282,443	54,143	123,383	35,779	197,982	283,397	201,439	87,623	288,679	33,345	131,567	70,229	2,790,009
Percent of Total	48.91%	2.06%	4.71%	1.36%	0.00%	10.81%	7.68%	3.34%	11.01%	1.27%	5.02%	2.68%	100.00%
Percent Capped	16.59%	10.13%	8.93%	3.01%	0.00%	14.59%	12.90%	5.46%	1.76%	0.93%	0.67%	0.85%	11.56%
Baseline transit trips	85,442	6,389	10,172	6,795	0	15,506	20,849	12,613	39,221	5,133	14,014	1,259	217,393
Build transit trips	112,090	7,496	13,075	7,562	12,154	20,533	22,685	13,294	41,146	5,462	17,281	3,482	276,260
New riders	26,648	1,107	2,903	767	12,154	5,027	1,836	681	1,925	329	3,267	2,223	58,867
Existing Rider Statistics													
Number	73,460	5,192	8,485	5,664	0	9,896	15,195	9,255	30,869	3,889	13,475	1,123	176,502
Benefits (minutes)	1,014,117	42,426	90,282	27,321	0	191,588	174,004	80,256	267,250	26,647	88,755	35,378	2,038,023
User benefit per existing rider	13.81	8.17	10.64	4.82	n/a	19.36	11.45	8.67	8.66	6.85	6.59	31.50	11.55
New Rider Statistics													
Number	27,528	1,196	3,094	969	12,154	5,143	2,053	809	2,359	460	3,523	2,223	61,511
Benefits(minutes)	532,576	18,493	47,169	12,299	197,982	103,233	62,236	19,511	39,998	13,629	44,336	35,450	1,126,912
User benefit per new rider	19.35	15.46	15.25	12.69	16.29	20.07	30.31	24.12	16.95	29.66	12.58	15.95	18.32
Non-included Attributed User Benefits													
all access transit markets	1,282,443	54,143	123,383	35,779	197,982	283,397	201,439	87,623	288,679	33,345	131,567	70,229	2,790,009
in-vehicle time savings walk access	101,805	5,194	16,720	4,103	0	22,180	10,943	2,616	23,279	1,502	23,972	5,643	217,957
guideway + local inveh savings walk access	173,520	9,317	26,323	8,058	0	41,492	19,195	6,386	42,042	2,943	35,976	11,738	376,990
guideway only inveh savings walk access	35,813	3,124	10,943	5,650	0	7,307	1,761	4,068	11,927	3,669	5,762	2,245	92,269
in-vehicle time savings PNR access	44,540	642	0	0	0	4,114	131	649	1,761	0	0	0	51,837
guideway + local inveh savings PNR access	36,702	468	0	0	0	4,499	248	644	1,271	0	0	0	43,832
guideway only inveh savings PNR access	91,974	1,943	0	0	0	7,569	73	5,061	8,178	0	0	0	114,798
in-vehicle time savings KNR access	19,309	372	0	0	0	3,716	1,383	286	1,779	0	0	0	26,845
guideway + local inveh savings KNR access	18,783	402	0	0	0	4,389	2,745	473	2,024	0	0	0	28,816
guideway only inveh savings KNR access	59,639	1,784	0	0	0	9,135	1,189	2,248	7,743	0	0	0	81,738
guideway only savings all access	1,864,528	77,389	177,369	53,590	197,982	387,798	239,107	110,054	388,683	41,459	197,277	89,855	3,825,091

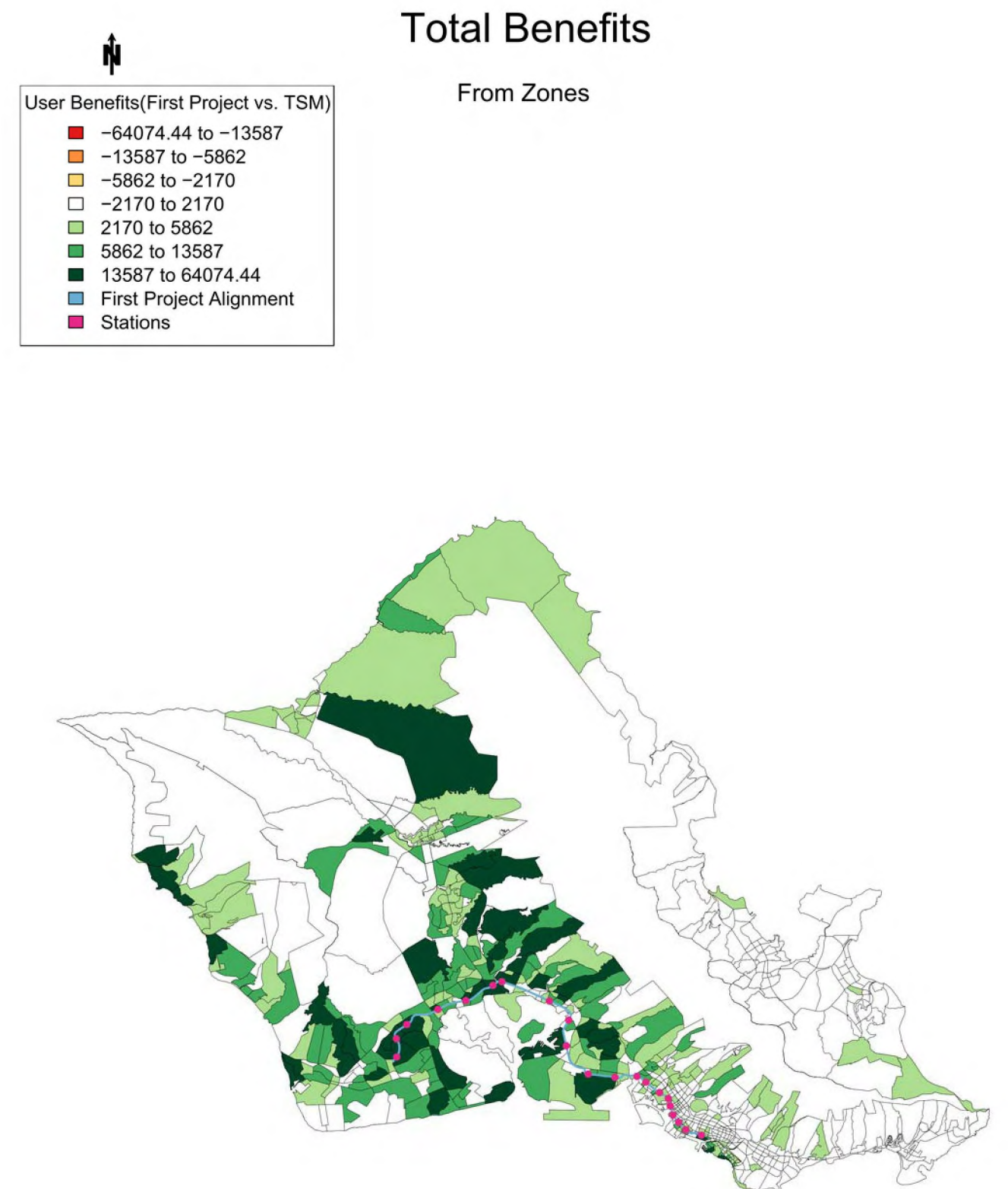
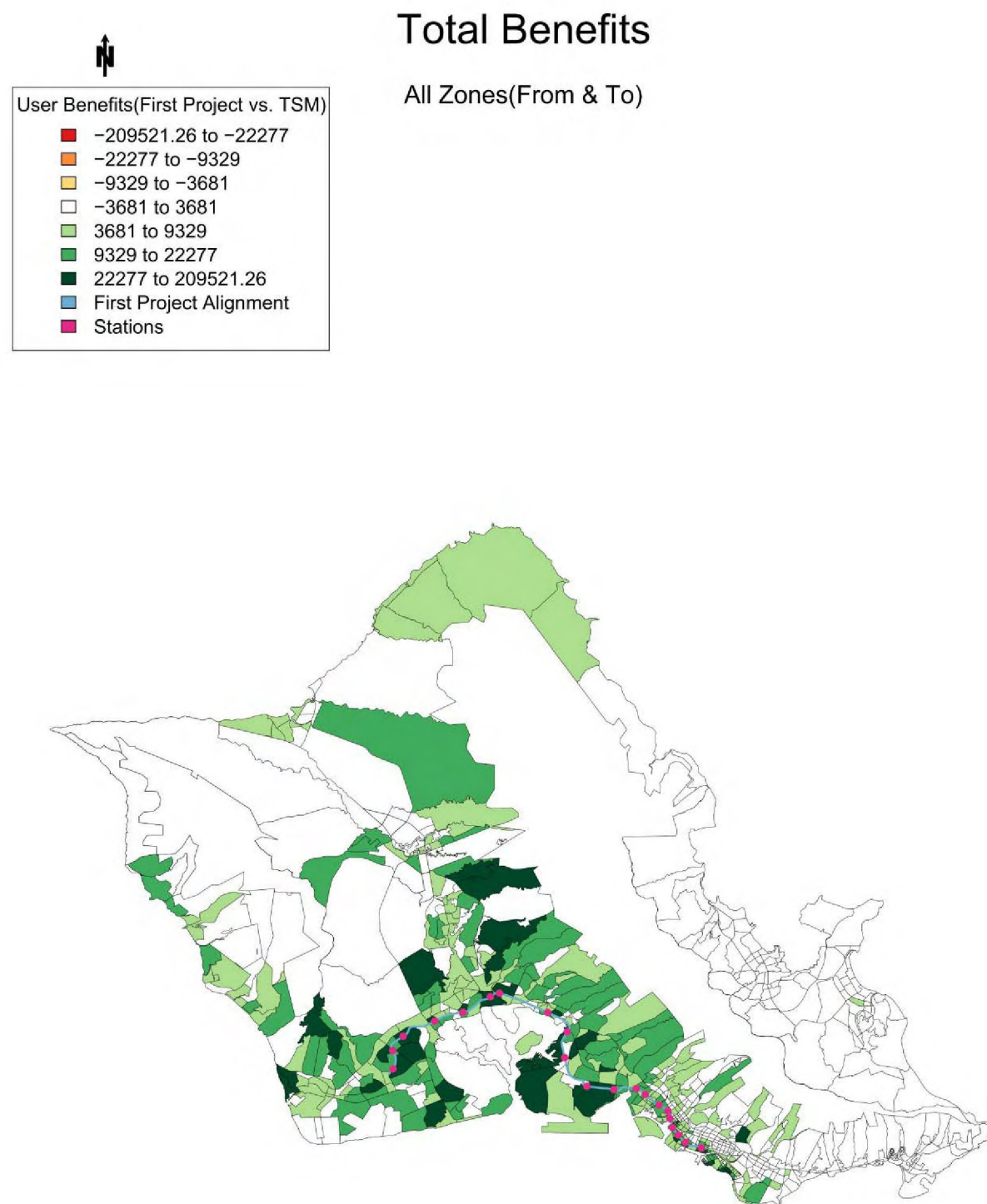


Figure 2-43. Visine Map of User Benefits (in minutes) for All Trip Purposes From and To Zones—First Project Airport Alternative vs. TSM Alternative

Figure 2-44. Visine Map of User Benefits (in minutes) for All Trip Purposes From Zones (Production)—First Project Airport Alternative vs. TSM Alternative

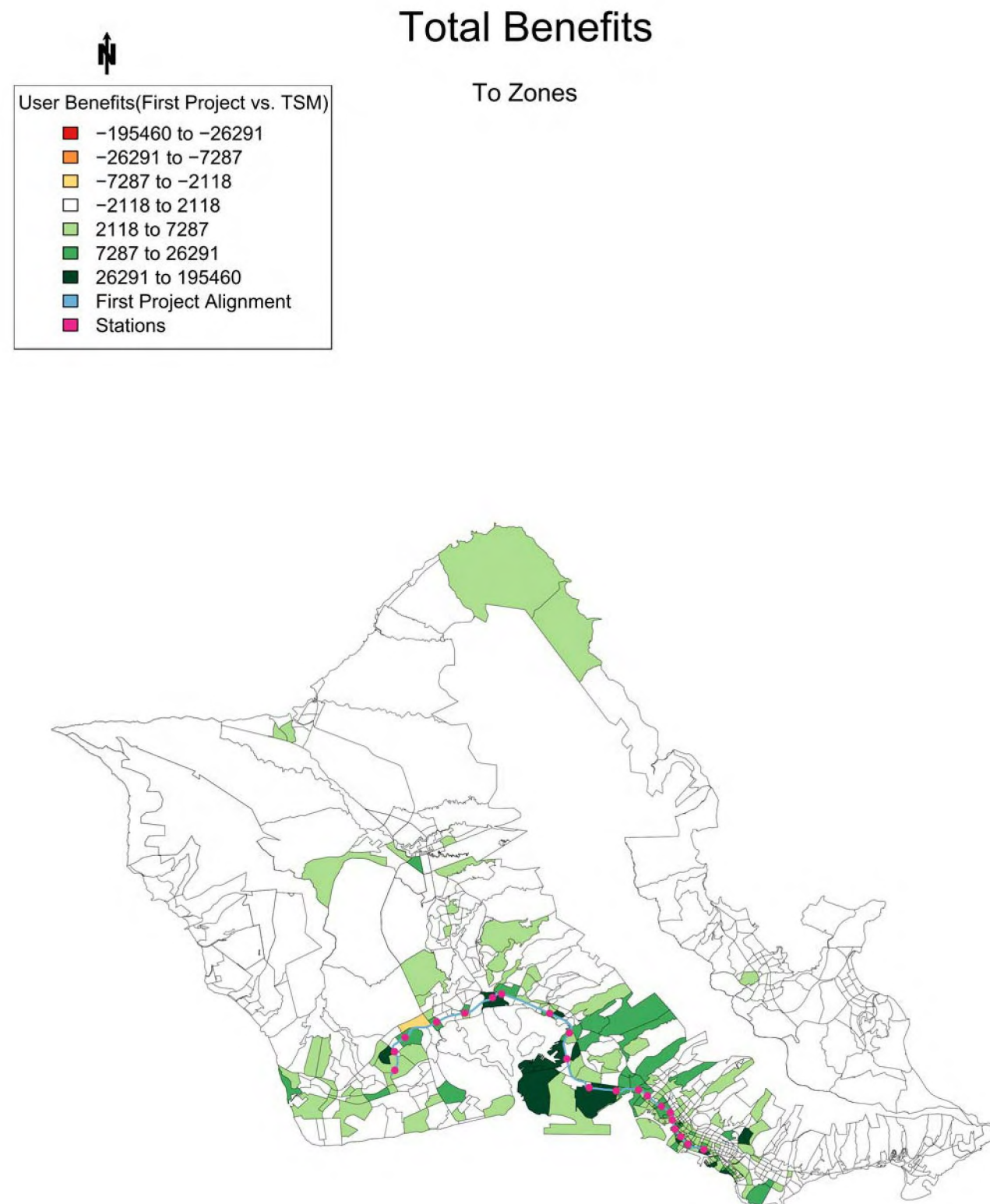


Figure 2-45. Visine Map of User Benefits (in minutes) for All Trip Purposes To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative

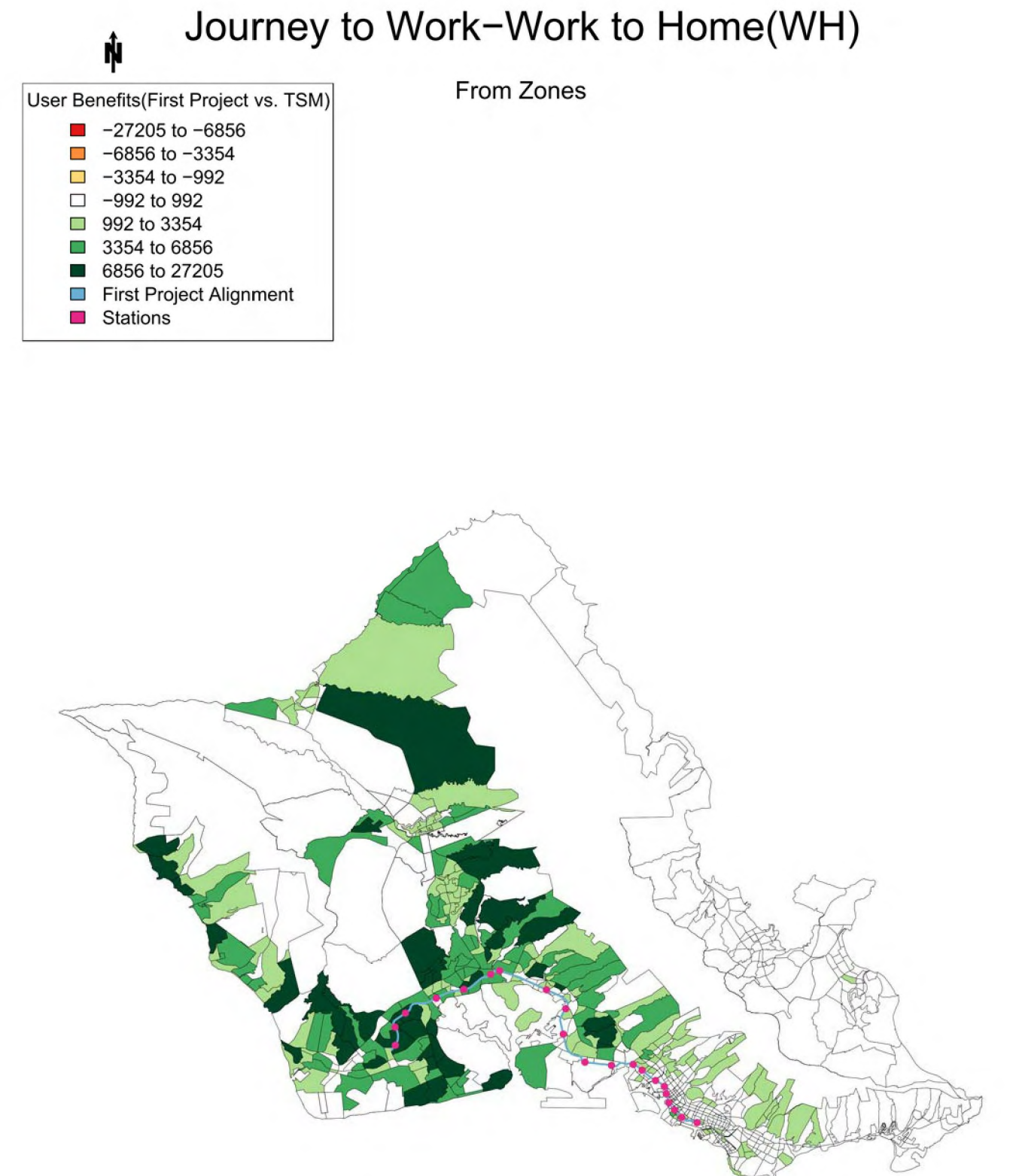
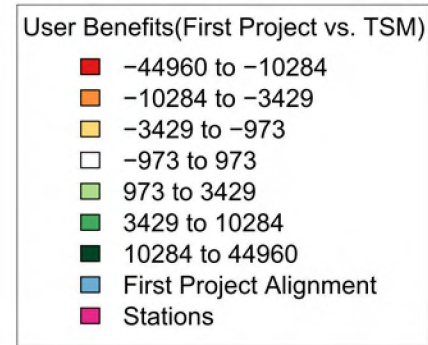


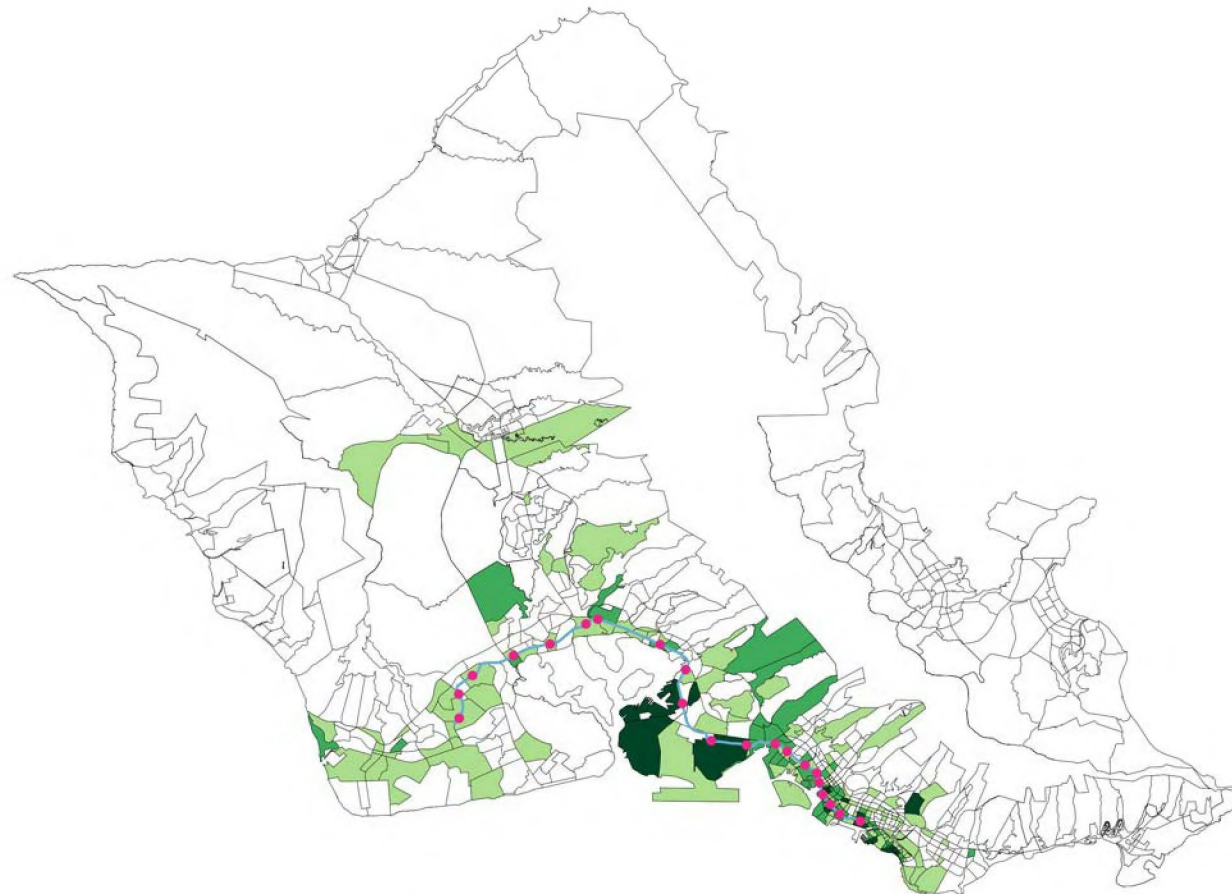
Figure 2-46. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Work From Zones (Production)—First Project Airport Alternative vs. TSM Alternative



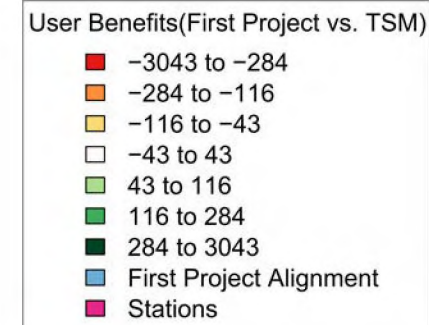
Journey to Work–Work to Home(WH)



To Zones



Journey to Work–Home Based Other(WO)



From Zones

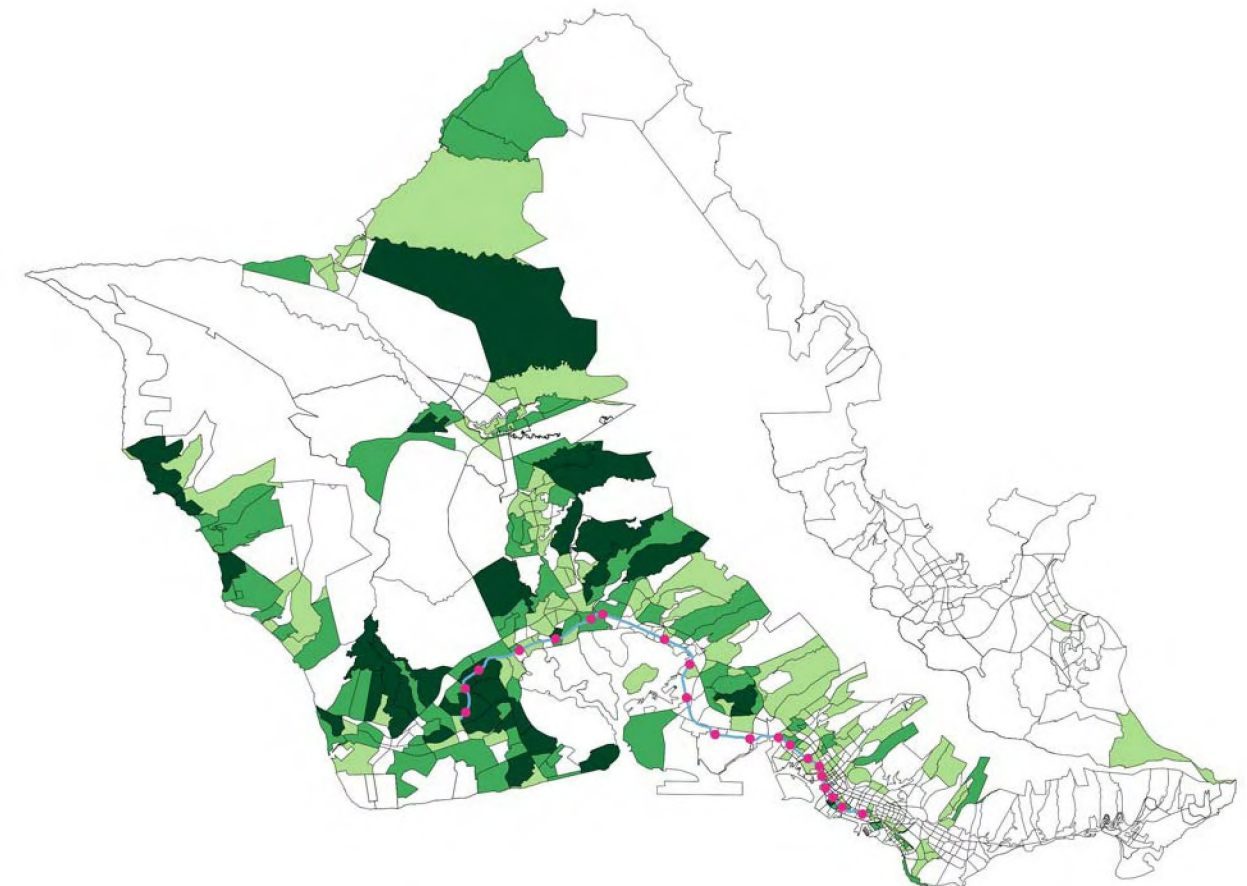


Figure 2-47. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Work To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative

Figure 2-48. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Other From Zones (Production)—First Project Airport Alternative vs. TSM Alternative

Journey to Work–Home Based Other(WO)

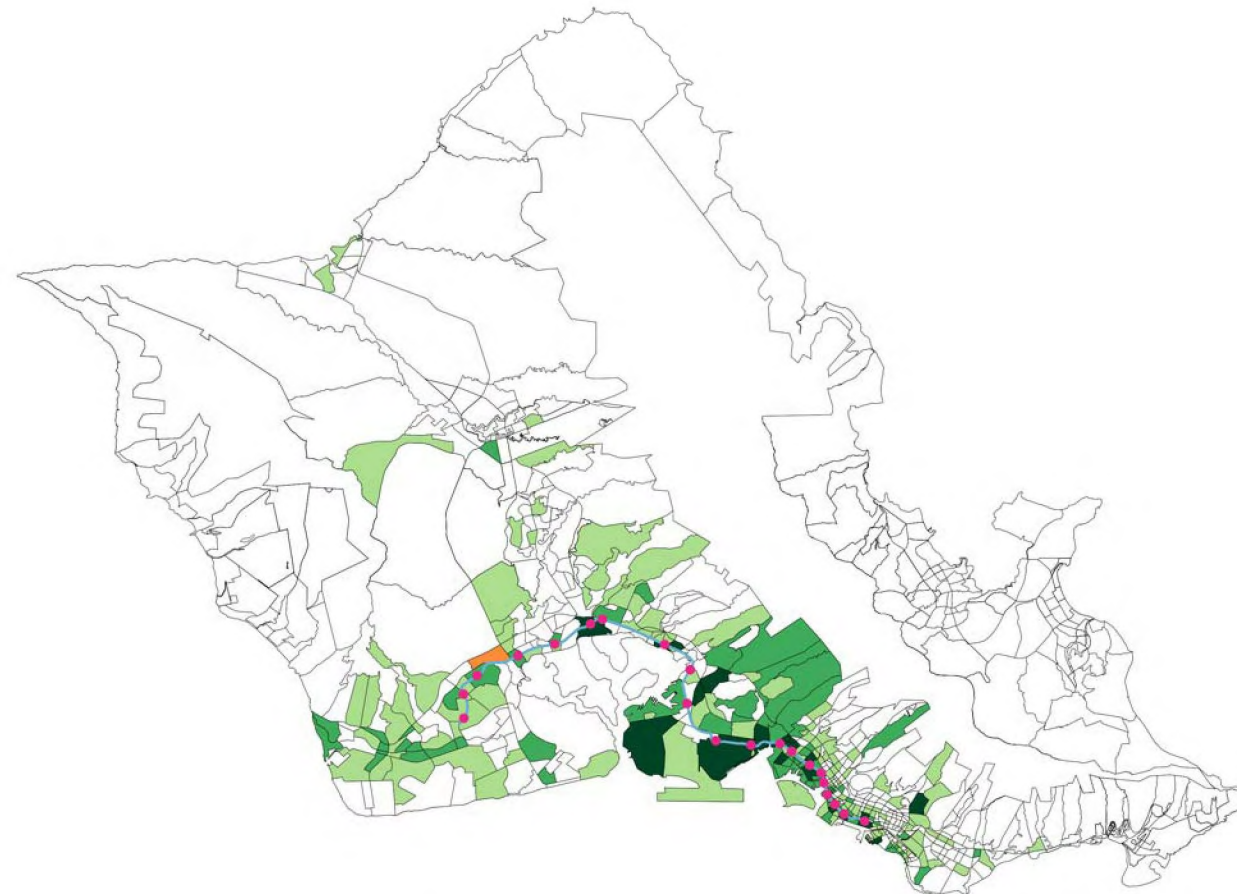
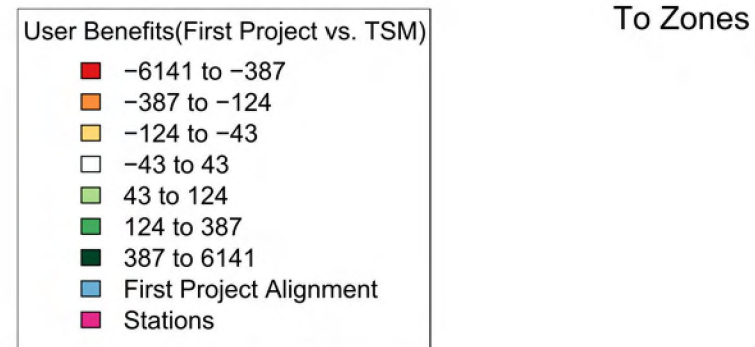


Figure 2-49. Visine Map of User Benefits (in minutes) for Journey-to-Work/Home-Based-Other To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative

Journey to Work–Work Based(WW)

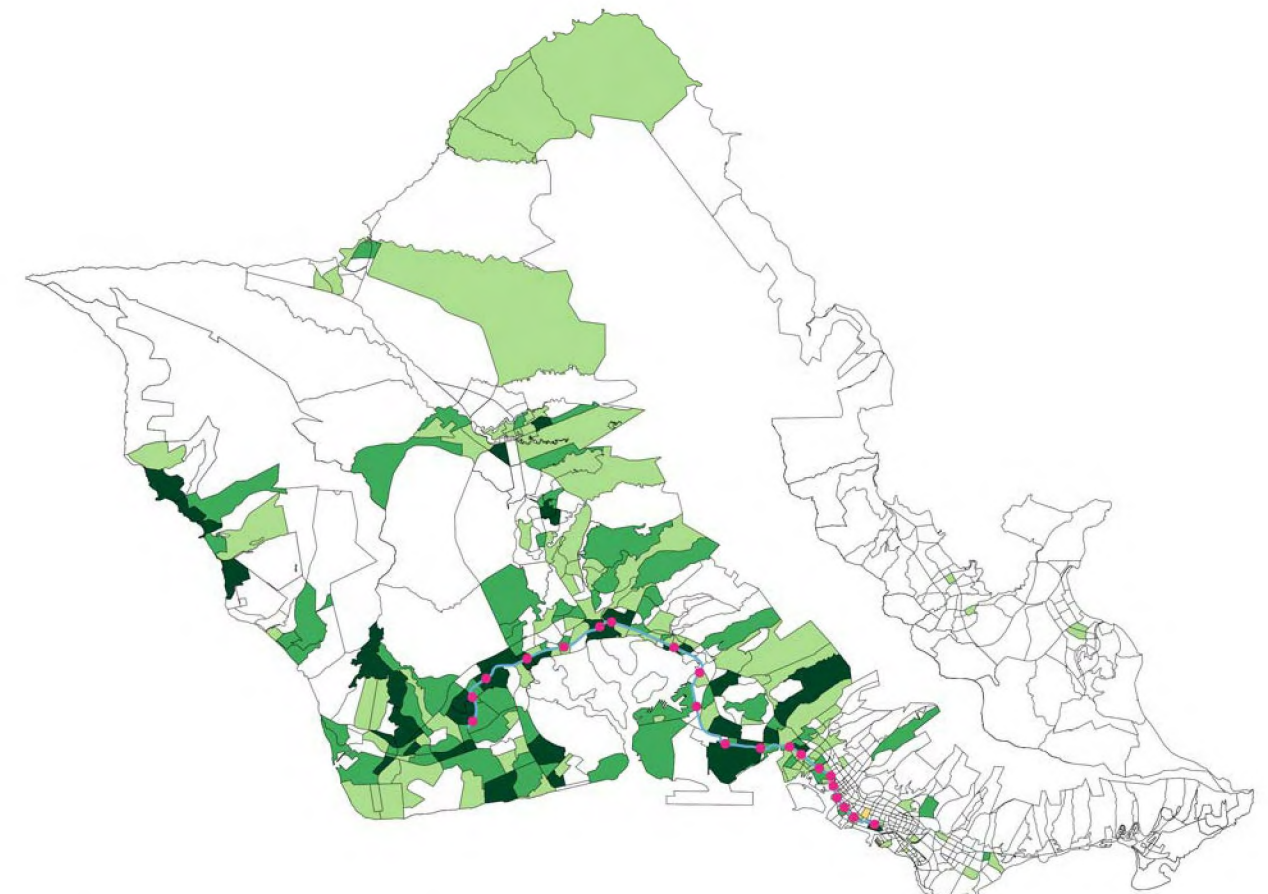
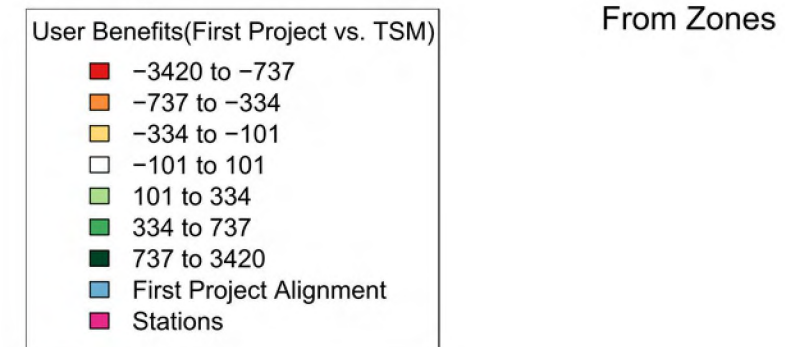


Figure 2-50. Visine Map of User Benefits (in minutes) for Journey-to-Work/Work-Related From Zones (Production)—First Project Airport Alternative vs. TSM Alternative

Journey to Work–Work Based(WW)

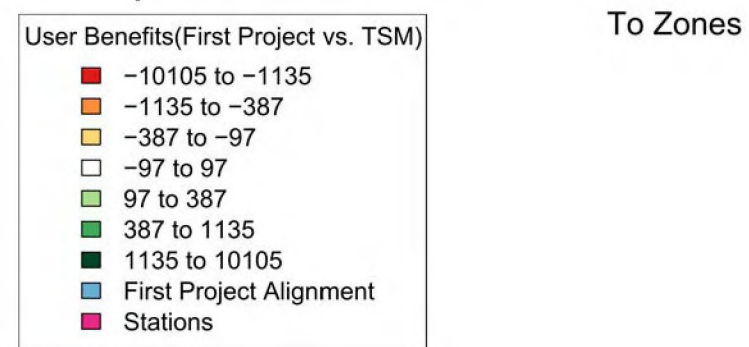


Figure 2-51. Visine Map of User Benefits (in minutes) for Journey-to-Work/Work-Related To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative

Journey to Work–Non–Based(WN)

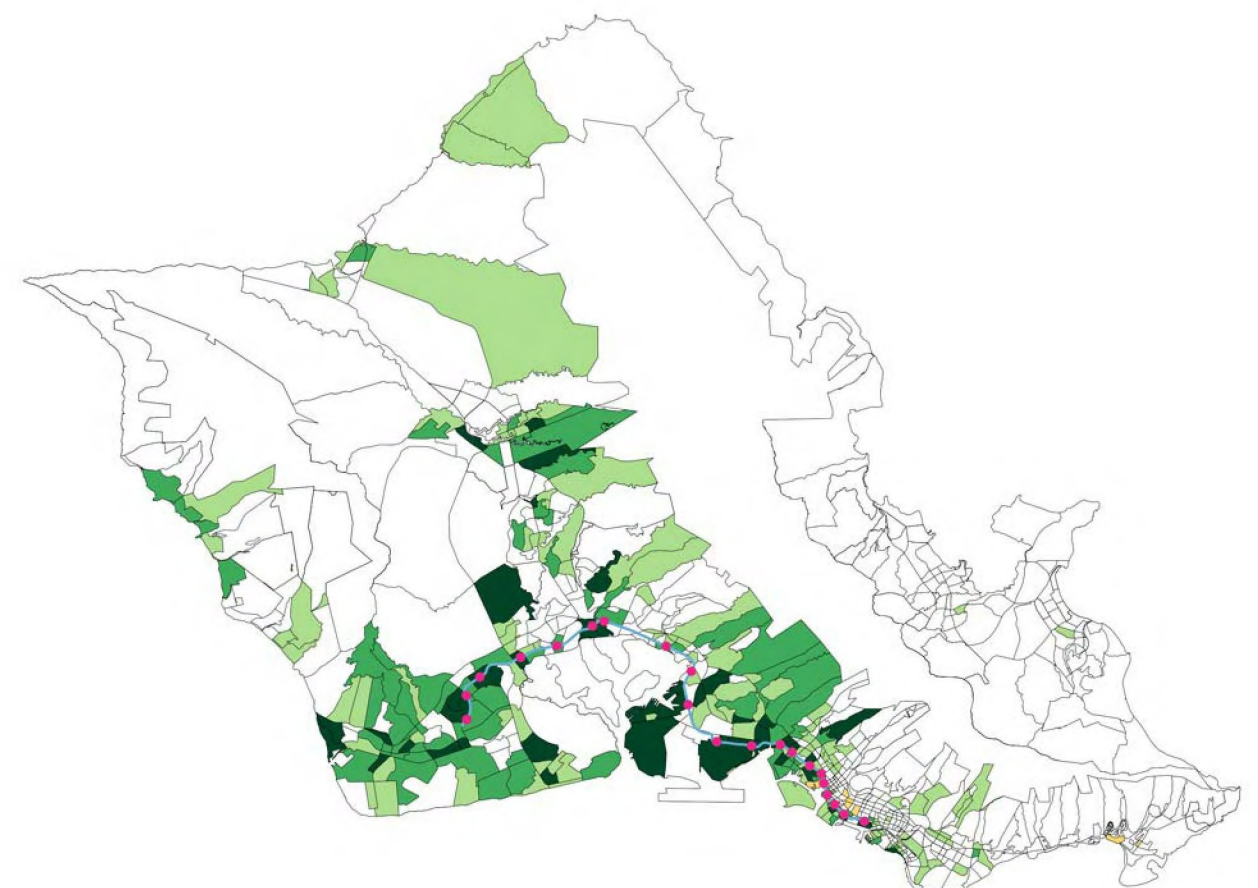
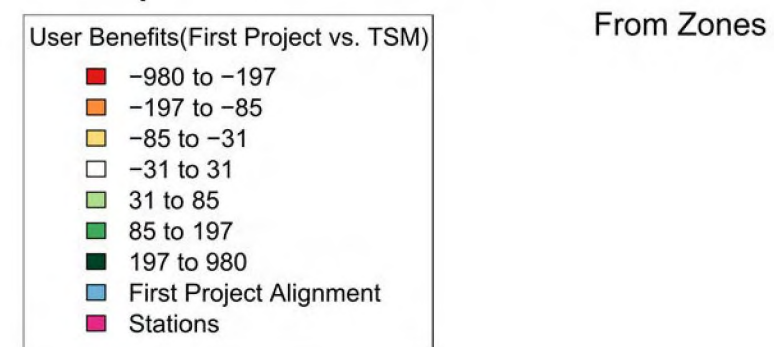
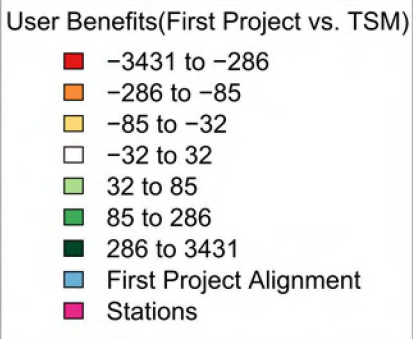


Figure 2-52. Visine Map of User Benefits (in minutes) for Journey-to-Work/Non-Work-Related From Zones (Production)—First Project Airport Alternative vs. TSM Alternative



Journey to Work–Non–Based(WN)



To Zones

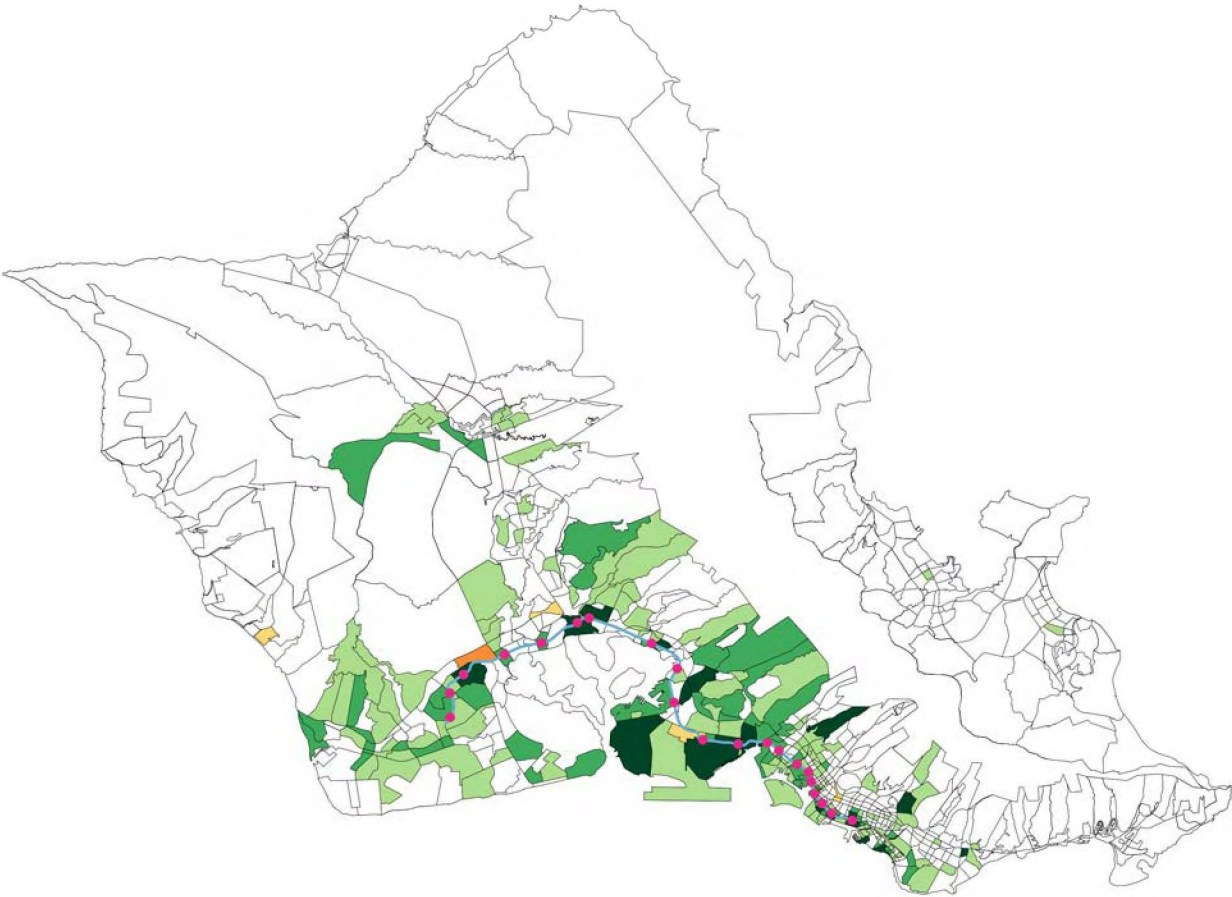
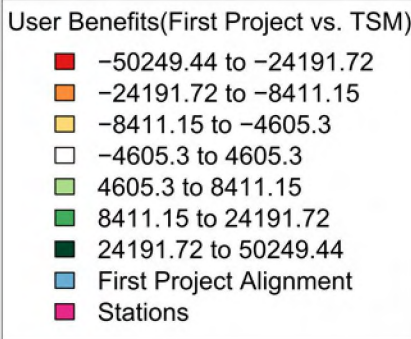


Figure 2-53. Visine Map of User Benefits (in minutes) for Journey-to-Work/Non-Work-Related To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative



Non–Home Based Direct Demand



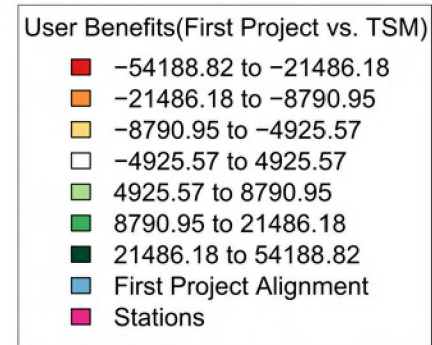
From Zones



Figure 2-54. Visine Map of User Benefits (in minutes) for Non-Home-Based Direct Demand From Zones (Production)—First Project Airport Alternative vs. TSM Alternative



Non-Home Based Direct Demand



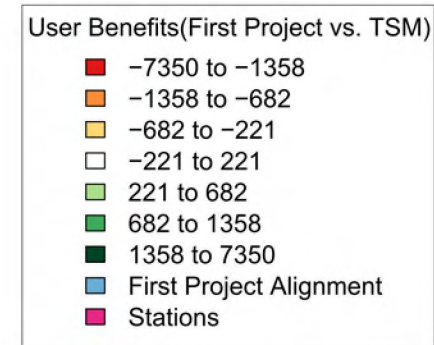
To Zones



Figure 2-55. Visine Map of User Benefits (in minutes) for Non-Home-Based Direct Demand To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative



Non Work-College(NC)



From Zones

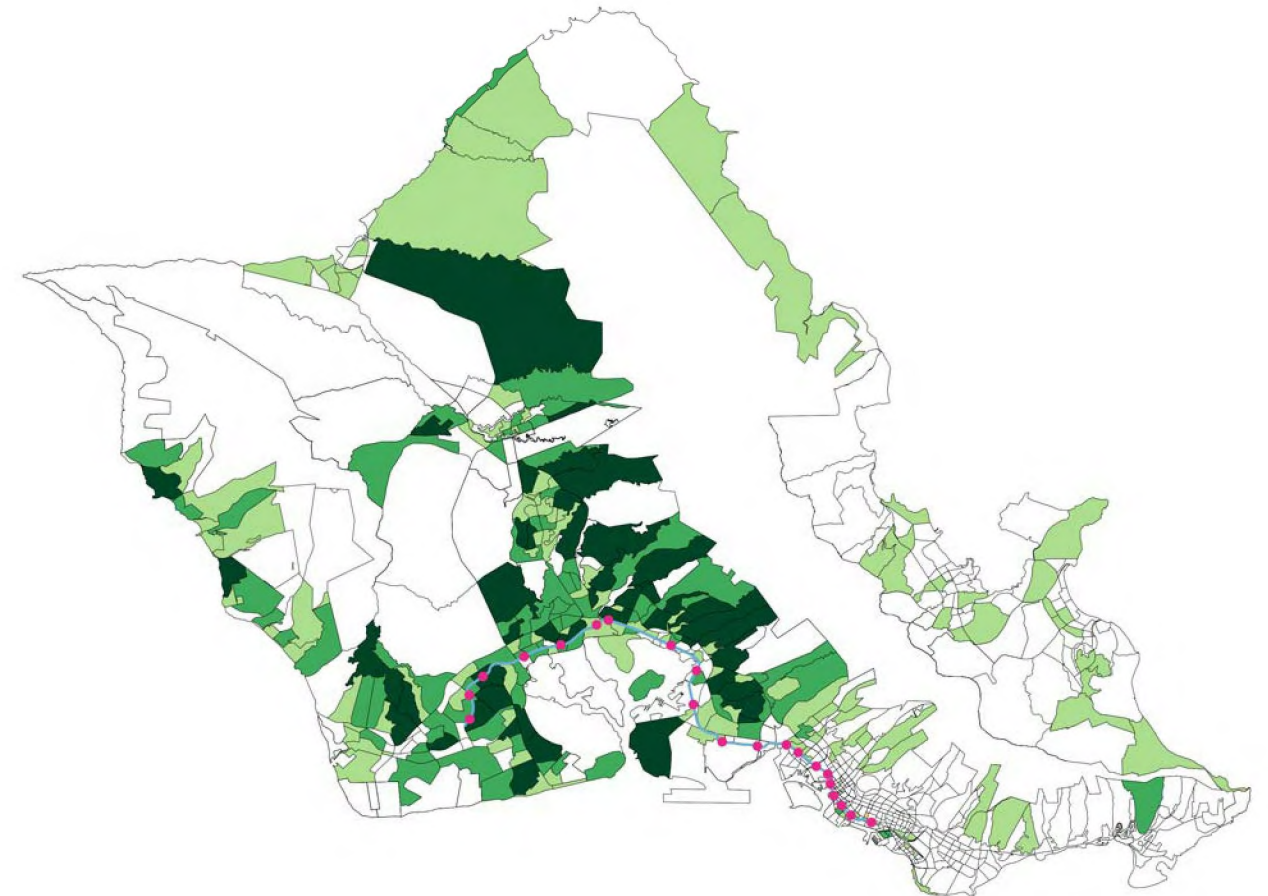


Figure 2-56. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-College From Zones (Production)—First Project Airport Alternative vs. TSM Alternative



Non Work-College(NC)

To Zones

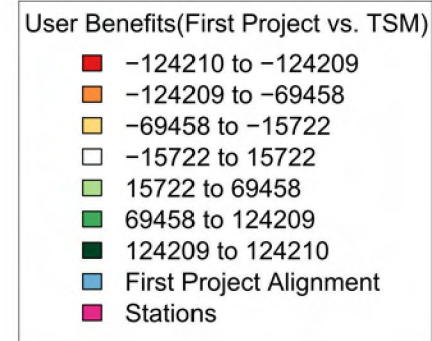


Figure 2-57. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-College To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative



Non-Work-K12(NK)

From Zones

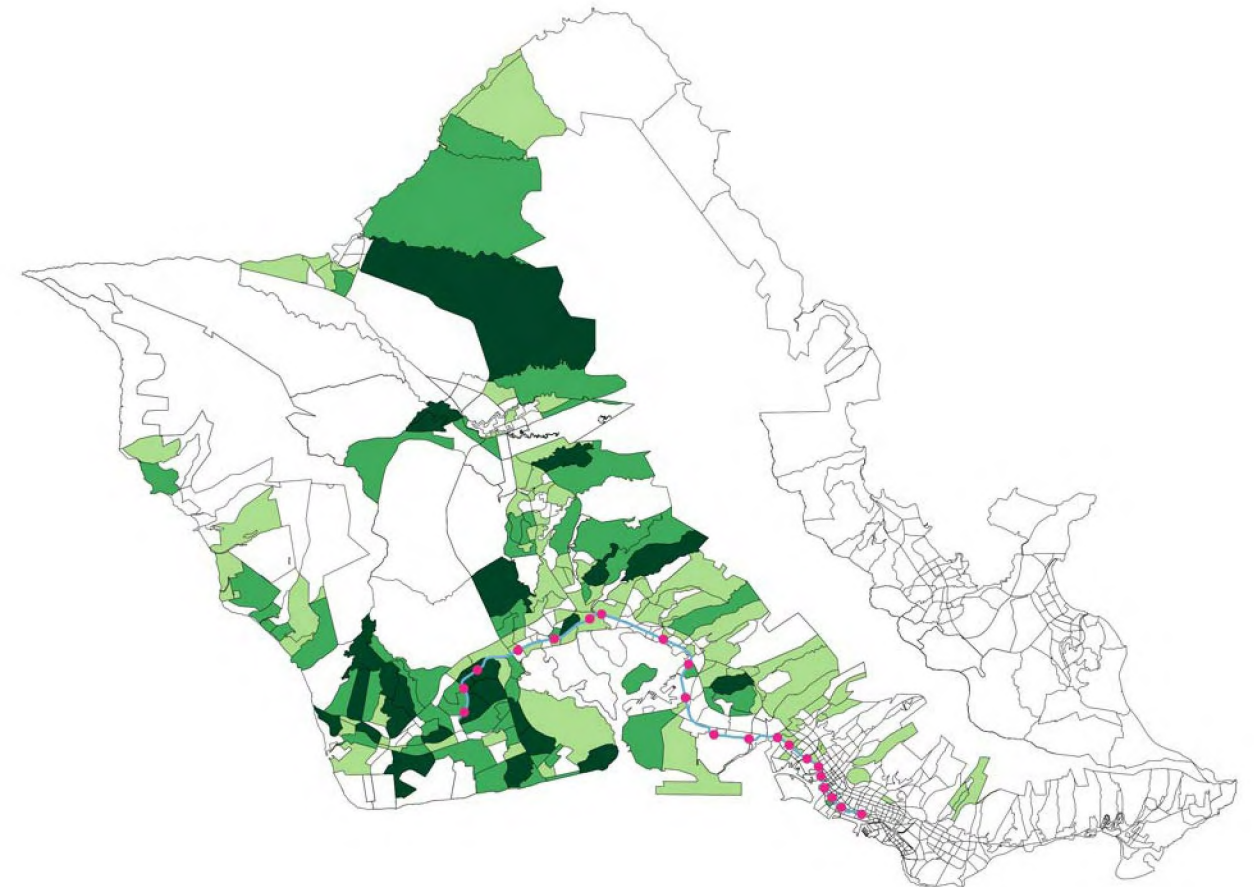
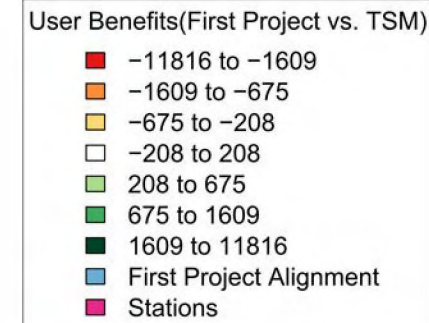


Figure 2-58. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-School (K-12) From Zones (Production)—First Project Airport Alternative vs. TSM Alternative

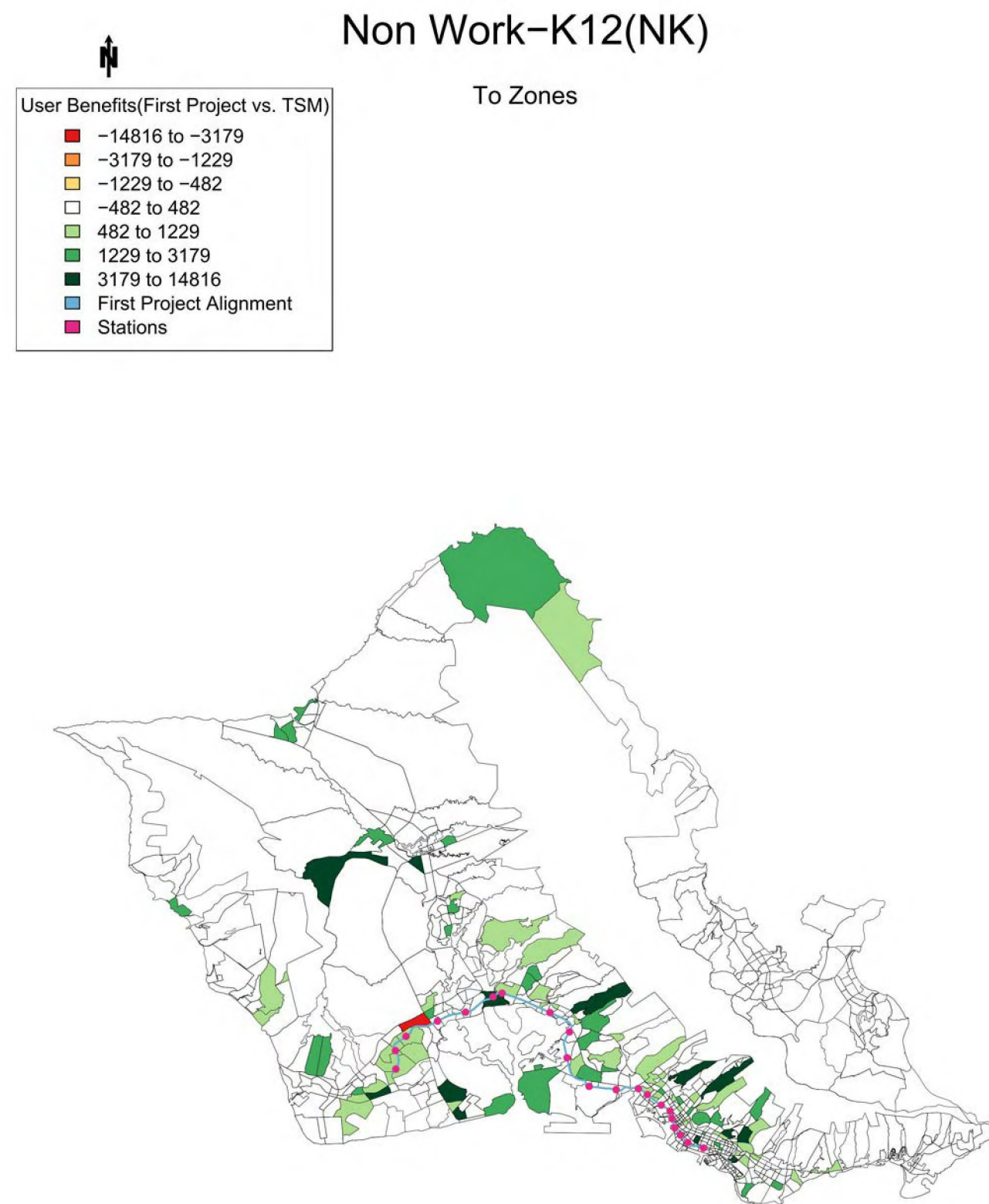


Figure 2-59. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-School (K-12) To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative

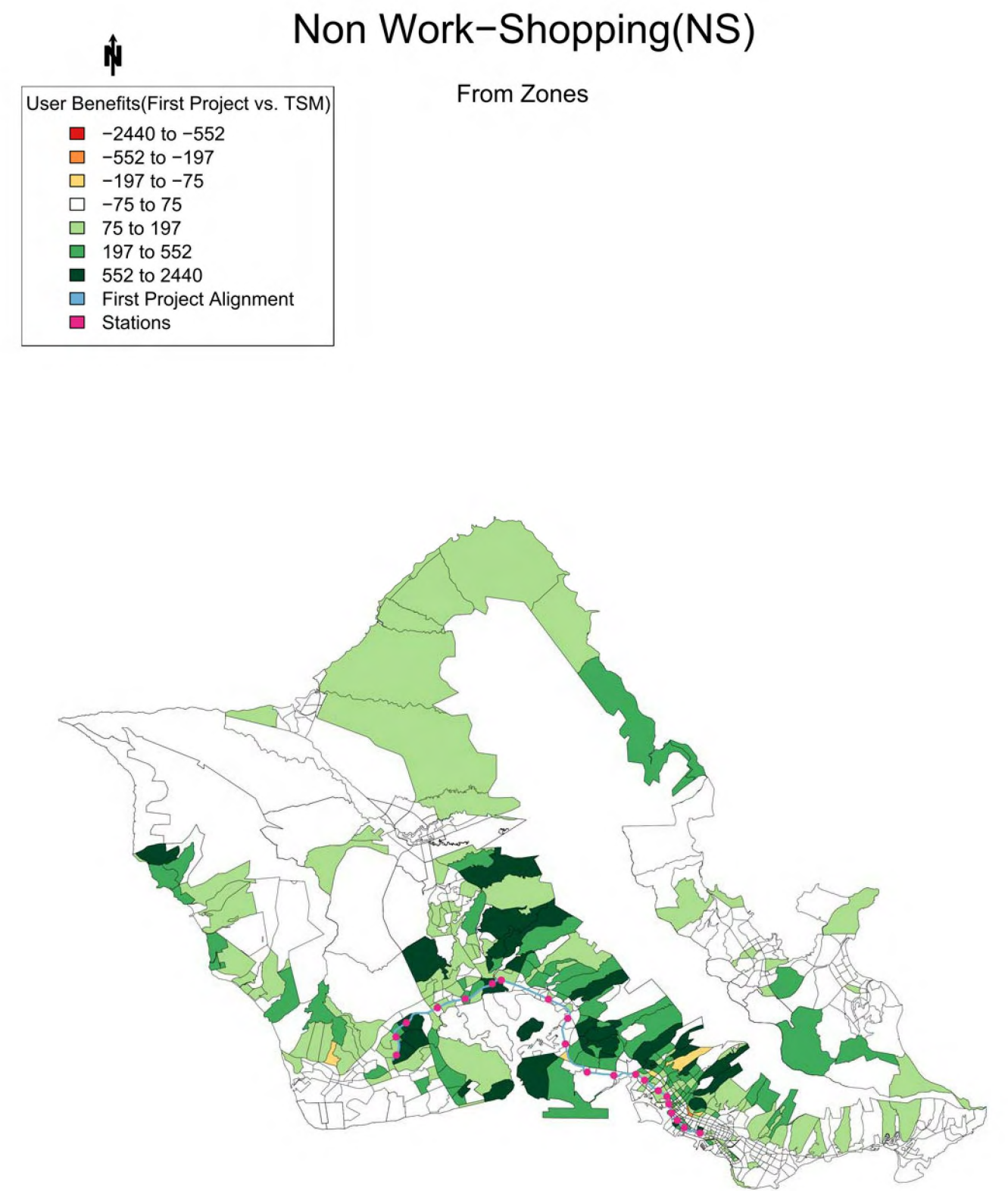


Figure 2-60. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Shopping From Zones (Production)—First Project Airport Alternative vs. TSM Alternative

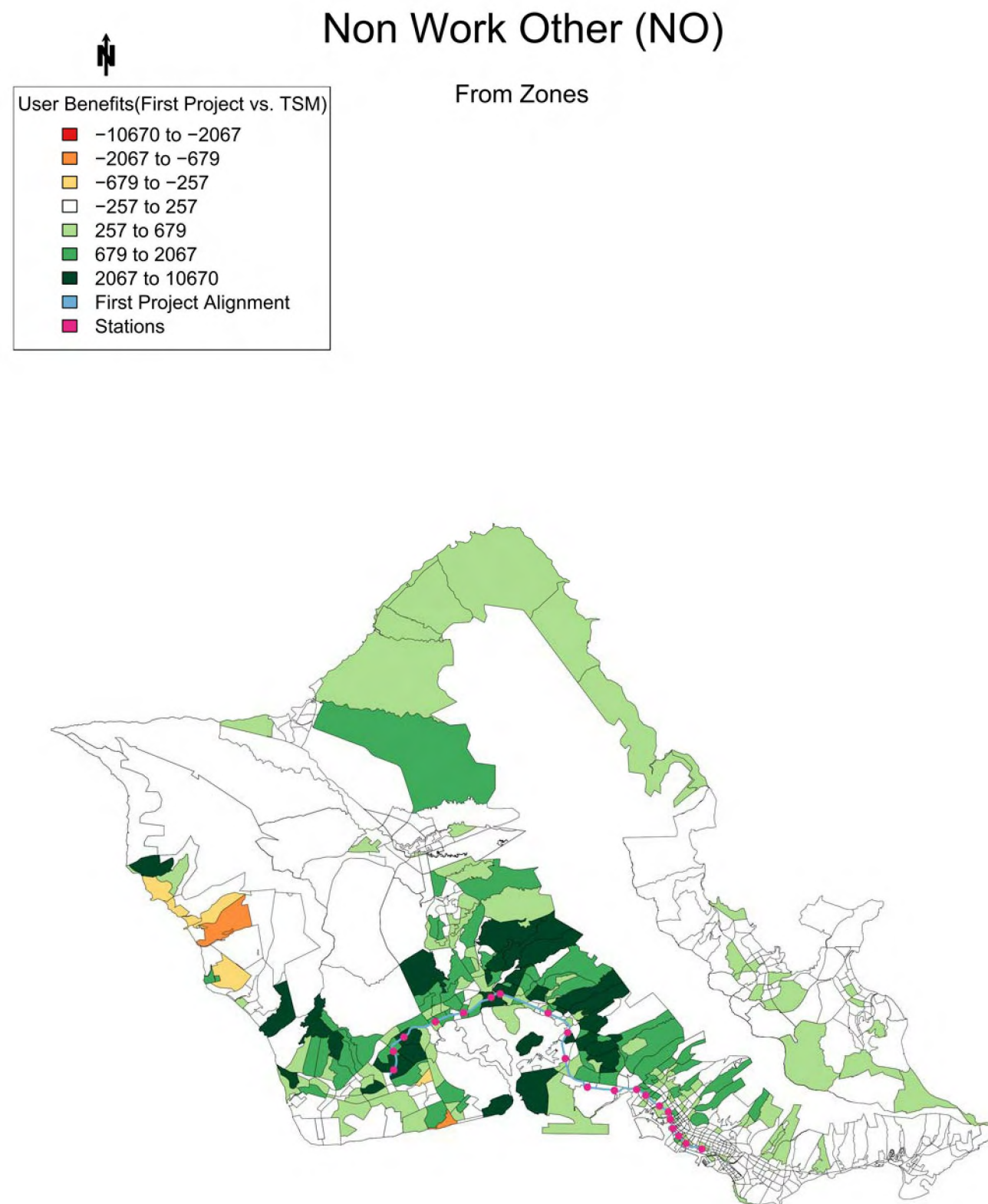


Figure 2-61. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Shopping To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative

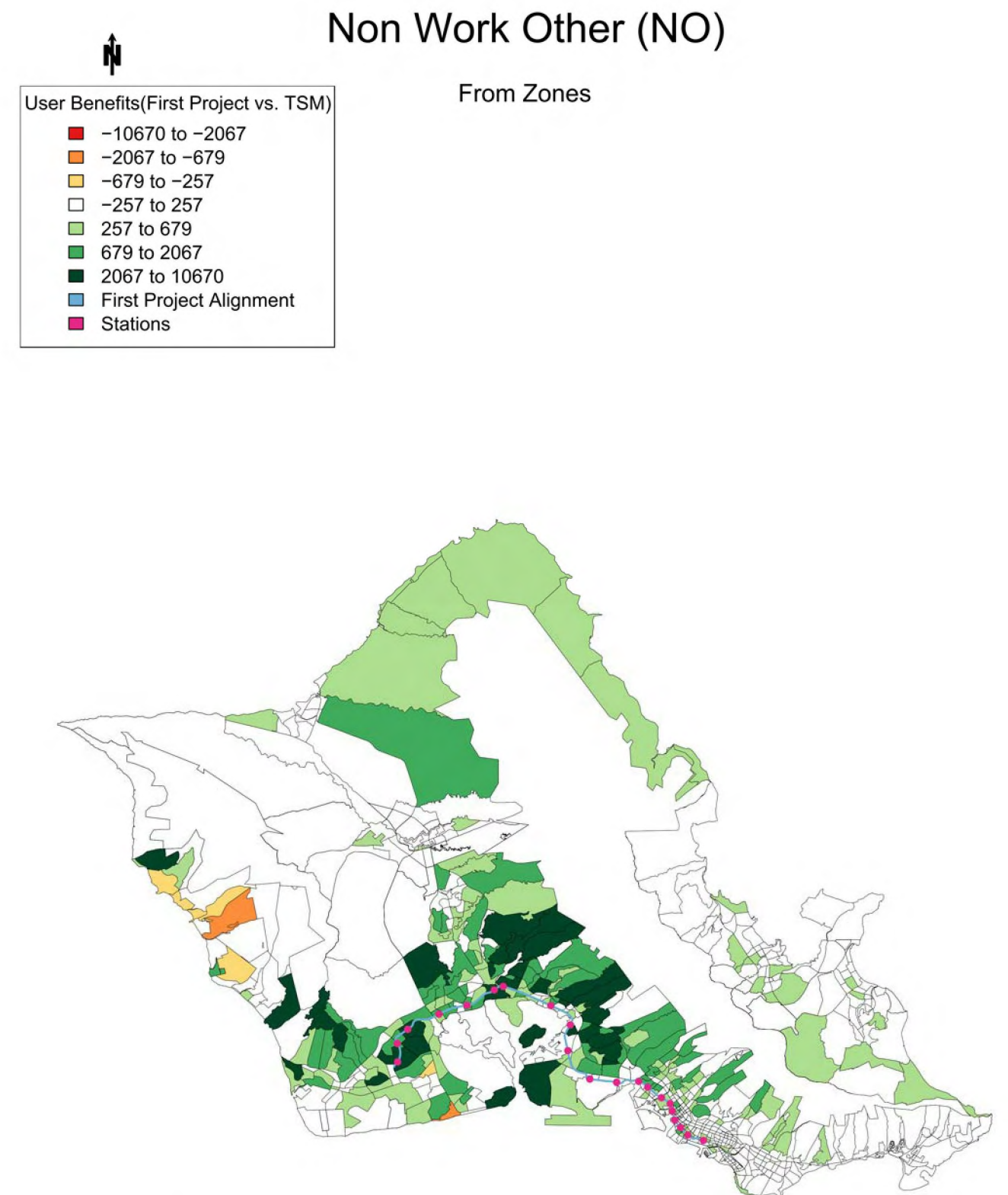


Figure 2-62. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Other From Zones (Production)—First Project Airport Alternative vs. TSM Alternative

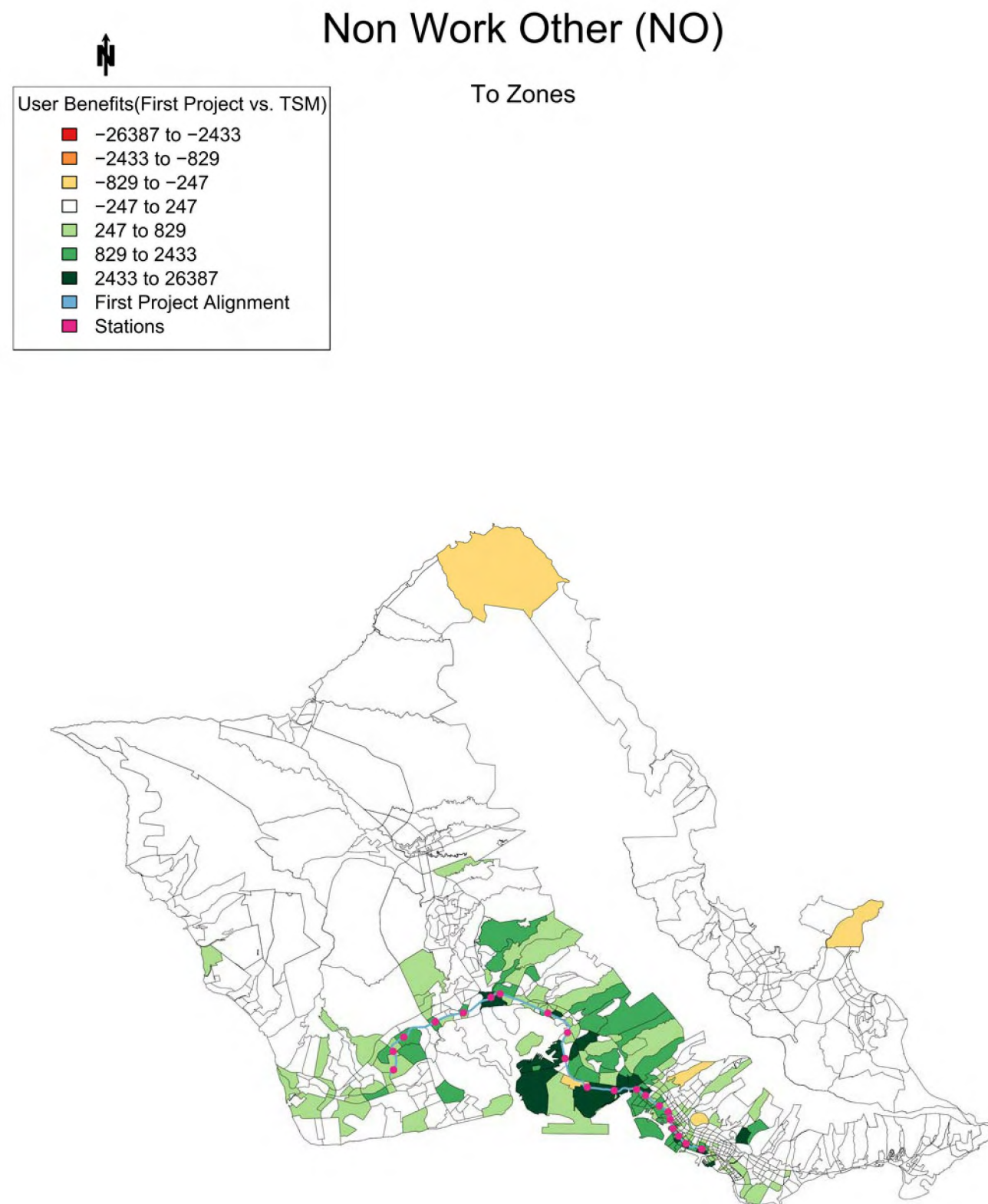


Figure 2-63. Visine Map of User Benefits (in minutes) for Non-Work-Related/Home-Based-Other To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative

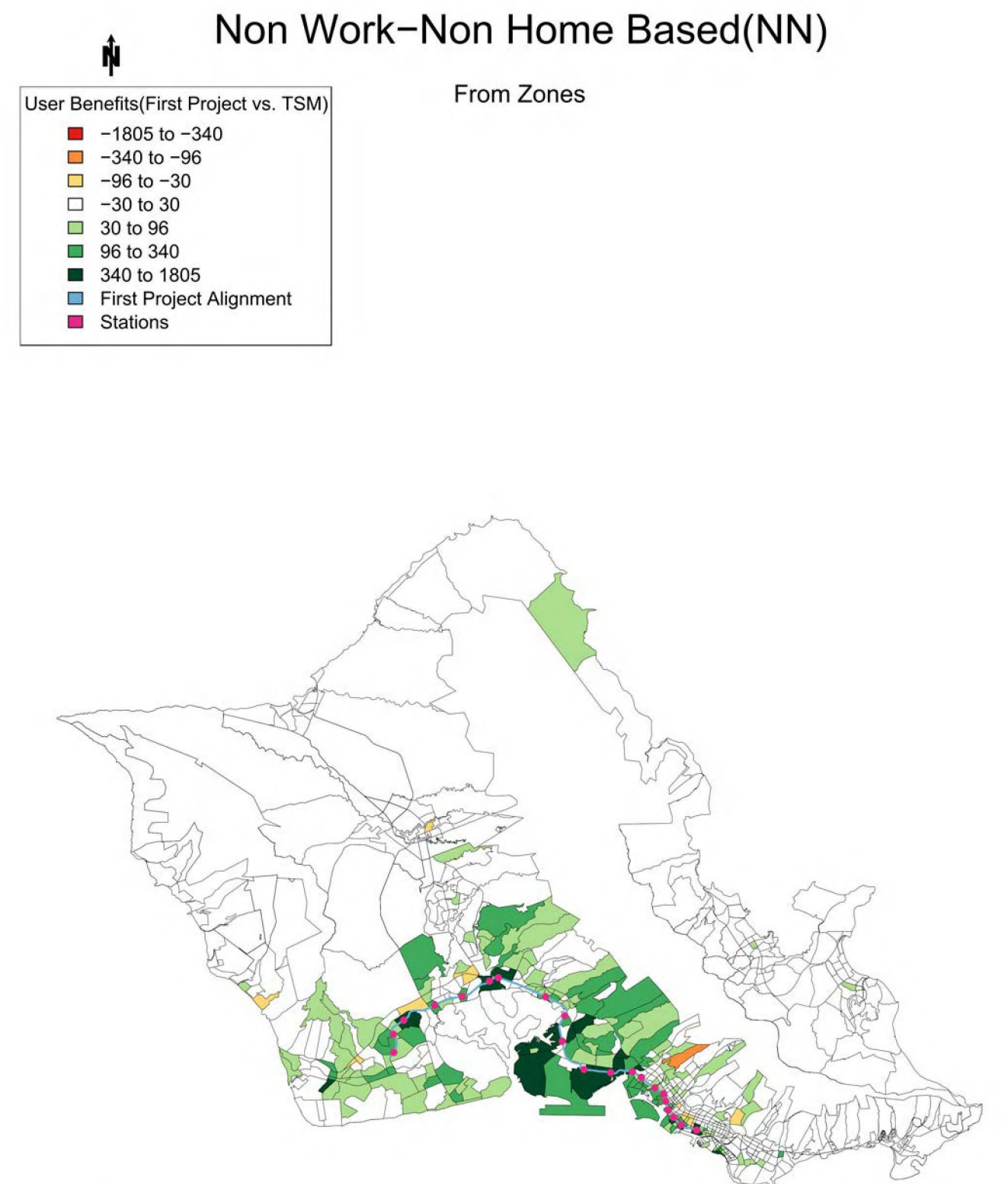


Figure 2-64. Visine Map of User Benefits (in minutes) for Non-Work-Related/Non-Home-Based From Zones (Production)—First Project Airport Alternative vs. TSM Alternative

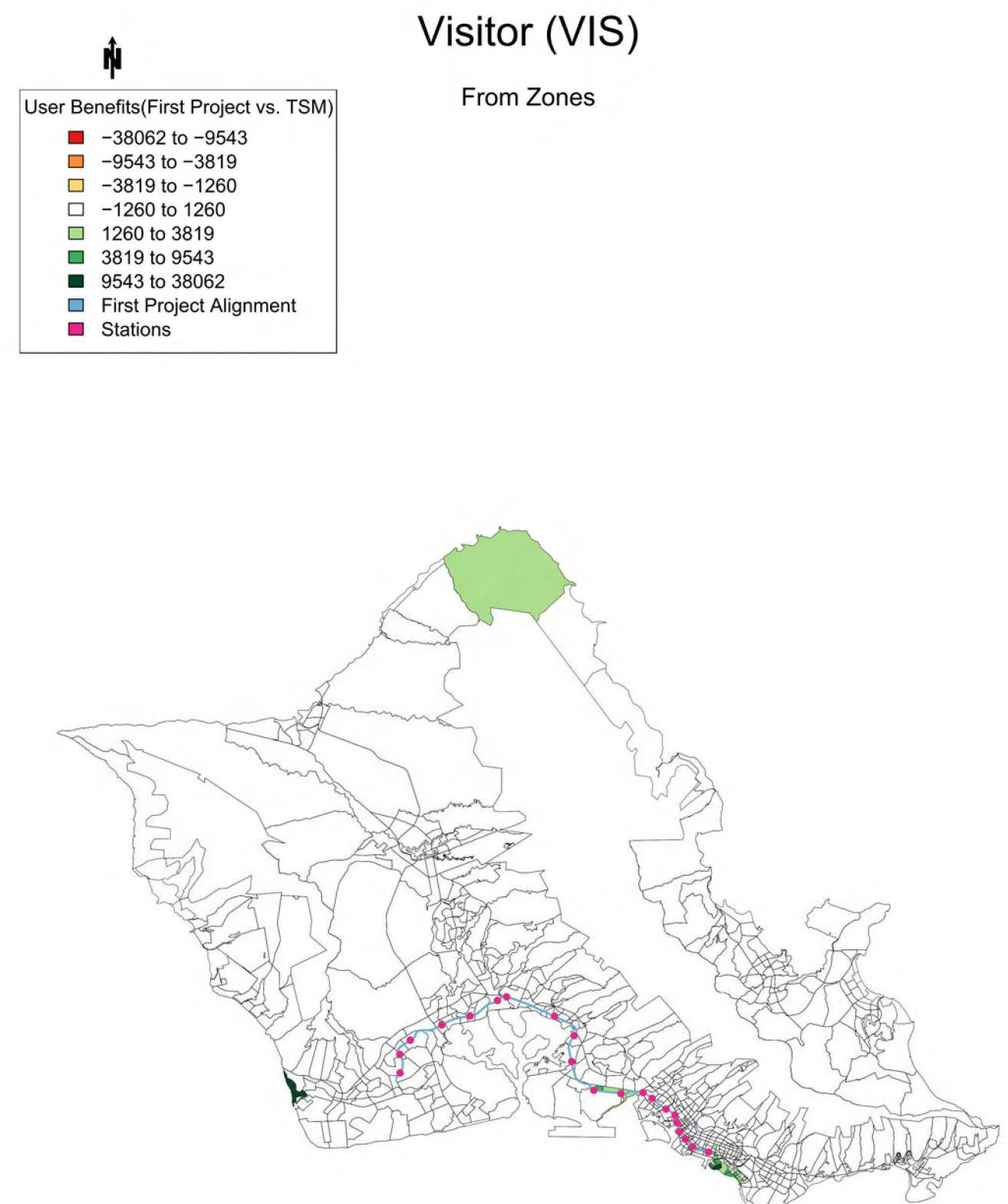
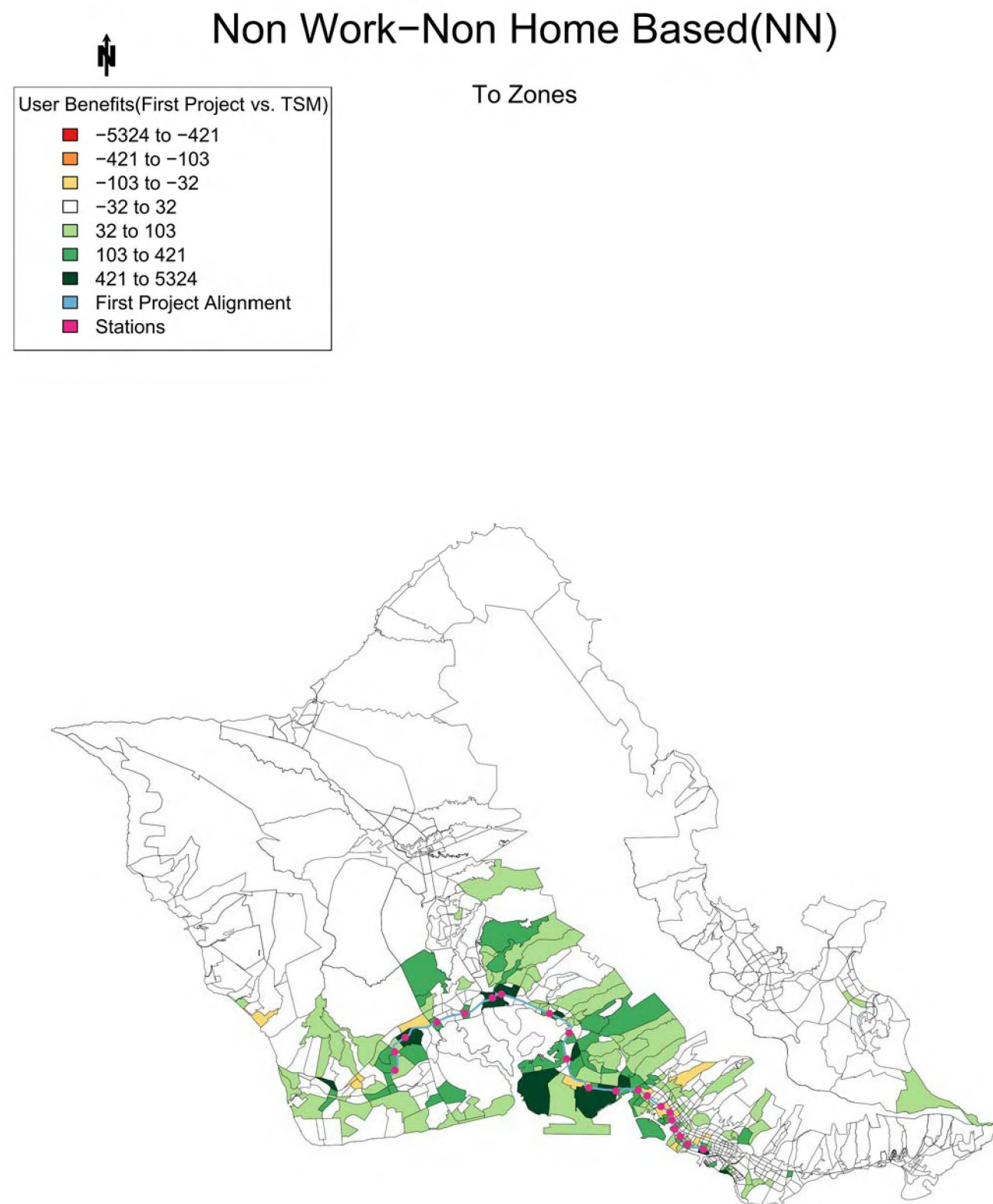


Figure 2-65. Visine Map of User Benefits (in minutes) for Non-Work-Related/Non-Home-Based To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative

Figure 2-66. Visine Map of User Benefits (in minutes) for Visitors From Zones (Production)—First Project Airport Alternative vs. TSM Alternative

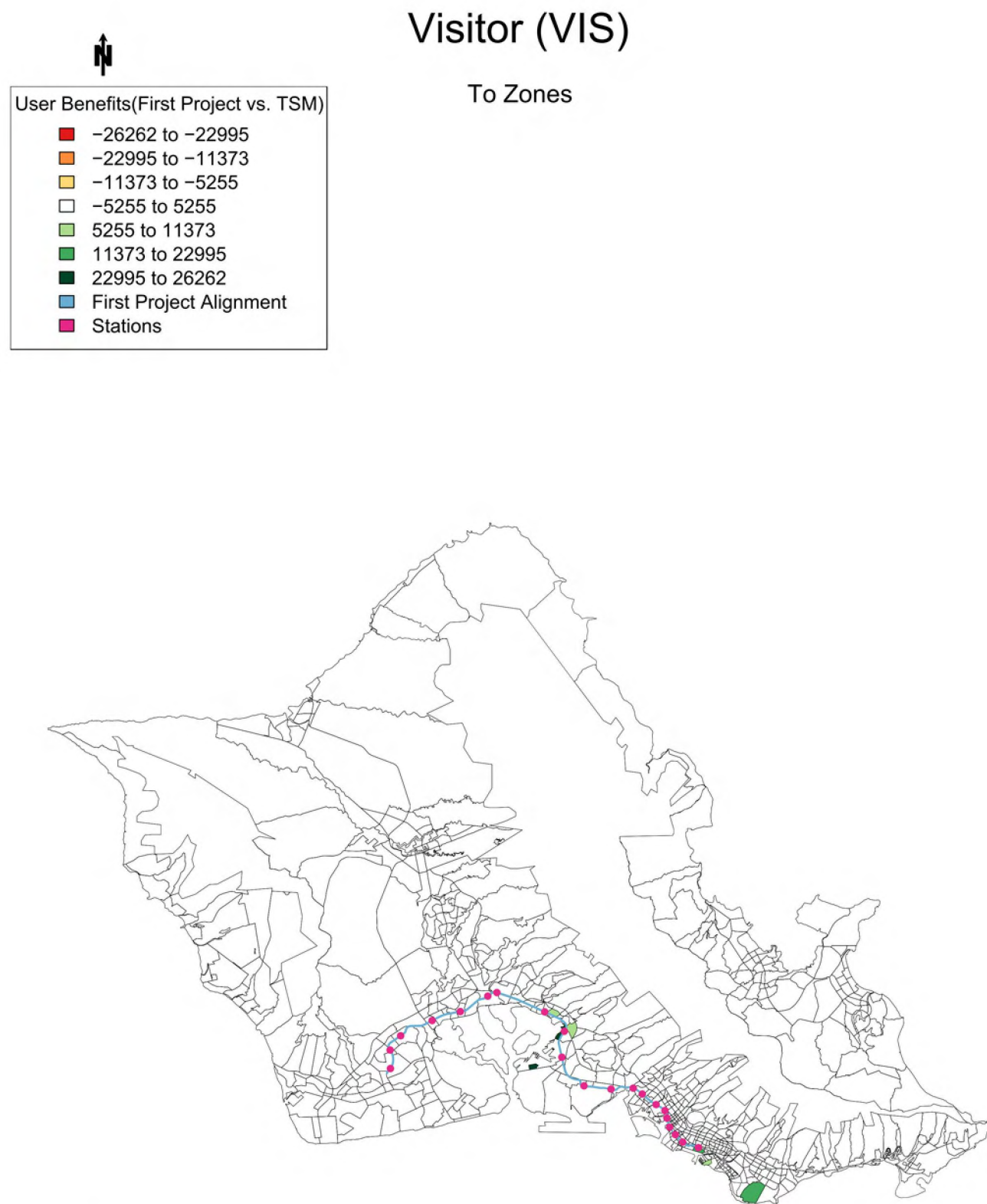


Figure 2-67. Visine Map of User Benefits (in minutes) for Visitors To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative

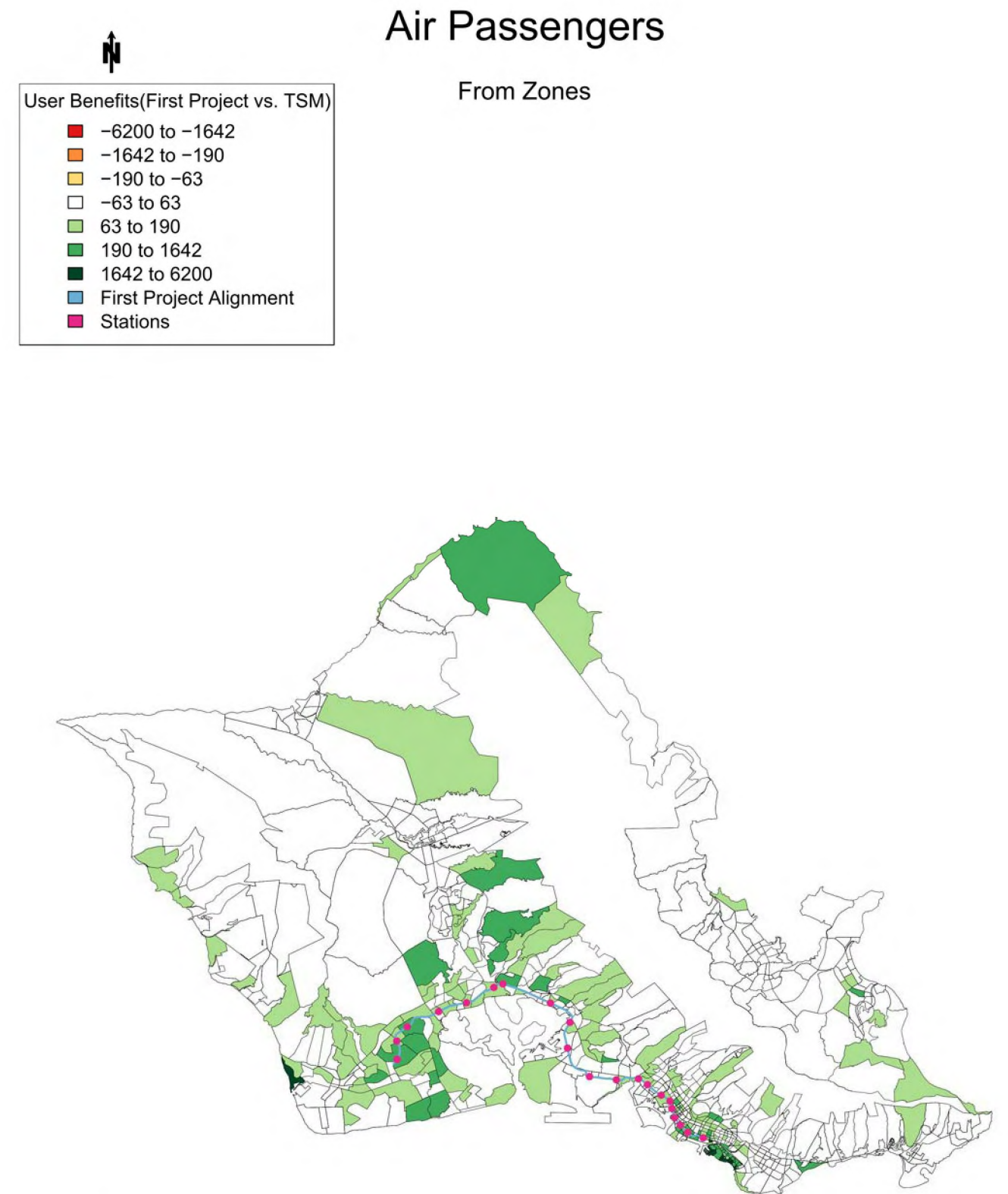


Figure 2-68. Visine Map of User Benefits (in minutes) for Ground Access Air –Passenger From Zones (Production)—First Project Airport Alternative vs. TSM Alternative

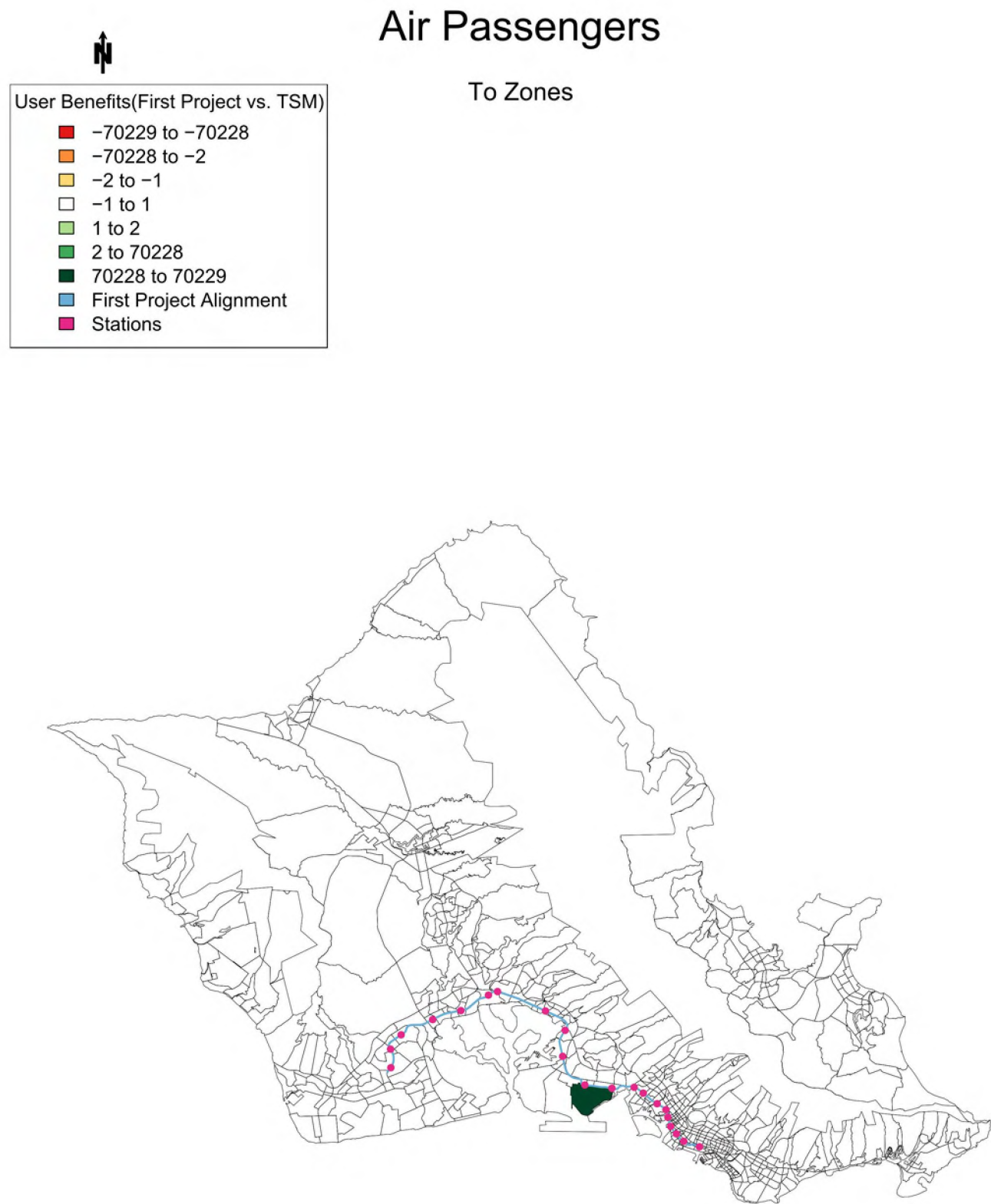


Figure 2-69. Visine Map of User Benefits (in minutes) for Ground Access Air Passenger To Zones (Attraction)—First Project Airport Alternative vs. TSM Alternative

Table 2-53. District-to-District User Benefits for All Trip Purposes (in minutes)—2030 First Project Alternative vs. 2030 TSM Alternative

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'i	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	(2619)	2996	4420	2781	(456)	1196	14167	20776	4267	2785	354	841	53	9542	604	131	(45)	(25)	23	3	(12)	6	48	374	3021	21738	86968
Kaka'ako	7110	(1298)	3102	3141	(306)	4583	17041	14442	4938	2533	202	1025	20	3687	365	202	87	(29)	292	343	13	23	69	759	3447	7463	73254
Mō'ili'i	21814	6190	1751	(714)	(1394)	867	10651	20551	3195	3913	165	920	69	2359	184	(11)	(65)	89	149	151	275	545	(15)	529	4054	4492	80713
Waikīkī	(877)	113	1164	4868	16590	(536)	5042	100291	2535	19219	1	831	47	6171	213	199	372	79	21	12	(295)	(308)	103	(1733)	2062	3674	159858
Kaimukī-Wai'alae	12756	4950	2450	8142	5064	868	4809	7446	2227	2276	189	849	113	1544	150	76	5	501	41	47	62	41	(1)	181	2280	2917	59983
Palama-Liliha	24554	13941	5958	4514	1363	4163	12786	26165	8030	6280	402	1784	102	4931	545	280	60	86	899	429	110	43	16	772	6704	12621	137540
Kalihi-Iwilei	23050	14860	5849	5149	931	2878	(1910)	15240	4869	4011	356	1012	26	8445	668	133	34	74	608	263	45	9	(11)	909	2458	13531	103484
Airport-Pearl Harbor	19077	4524	2587	8592	2995	3510	5622	7818	8134	3654	1149	1574	63	20267	1915	124	37	273	447	599	204	153	113	605	3835	10481	108350
Salt Lake-Āliamanu	35804	17363	7350	7516	3031	6544	24426	33069	12280	15023	846	3868	200	9217	1521	522	235	336	1488	1175	415	85	220	1598	16651	6225	207008
Pearl City-'Aiea	58955	17949	12738	12821	7743	8740	33461	43975	25954	7727	2261	9090	662	28947	1572	453	131	882	2565	2603	1126	42	144	2943	35868	8450	327801
'Ewa	77121	26440	24664	64683	15217	11449	32180	33539	15826	23370	24488	34684	2300	31664	3615	3472	2511	2297	2197	2543	2494	388	94	6270	29990	8351	481847
Kapolei	44382	14522	14064	48357	10266	6958	17012	30935	9156	16989	7646	25659	3698	20900	2841	2233	1847	1628	1504	1690	1514	618	612	3946	16443	23591	329011
Makakilo	23971	8728	8199	19477	5546	4510	9940	11046	5677	8769	2746	5895	1579	7169	1190	1214	1012	828	909	957	1170	149	142	2532	10503	2908	146767
Waipahu-Waikele	60652	15570	24862	68290	9248	8157	25350	40109	13456	27451	6969	14316	1344	31277	3792	2556	1610	1512	1289	1547	1493	294	(22)	4640	29075	13806	408645
Waiawa	32845	9720	14669	42070	6214	4378	13619	19576	10415	11148	3409	11476	1130	17937	471	1471	329	962	1260	1770	712	202	426	2247	15510	7736	231701
Mililani	41645	13081	10973	13118	7549	5306	15567	17946	8898	12190	3171	13035	862	17195	2005	9737	3771	856	1211	1205	133	644	595	2354	23989	5015	232051
Wahiawa	20429	7130	5854	8320	3990	2587	7866	8938	4883	5675	1747	7537	502	8046	847	10124	9992	416	542	472	48	952	492	1297	15714	3436	137836
East Honolulu	4573	1864	271	1257	1200	545	1108	5793	1634	1594	168	771	54	1390	175	27	(174)	42	44	35	22	33	(264)	372	3969	353	26857
Kāne'ohe	173	4084	2113	2389	512	602	2639	9886	3212	3200	305	1034	137	2949	395	191	(97)	6	87	49	0	31	(140)	356	8845	4112	47070
Kailua	(369)	4312	1997	2673	221	486	1923	8203	2305	2269	225	1064	72	3039	307	68	(263)	1	9	34	0	10	(291)	316	8176	4416	41205
Ko'olau Loa	314	764	658	614	109	(15)	415	2856	503	841	33	157	38	423	77	23	3	7	4	0	0	43	(413)	130	1565	2543	11692
North Shore	14479	5730	5225	6914	3173	2260	4761	5798	3477	1988	479	1749	92	2544	530	1353	2520	436	197	416	153	6310	77	1455	10242	3115	85472
Wai'anae	39554	16286	12961	18646	8279	6022	13824	25619	11251	8444	1564	6480	631	8803	2066	1746	1586	114	1082	352	(119)	(20)	5726	2476	20441	5724	219538
Makiki-Mānoa	12127	3941	863	134	(275)	113	6787	10156	2928	1954	141	805	61	2191	138	(54)	(9)	(167)	80	96	18	131	(14)	1360	(103)	2827	46229
UH Mānoa	826	472	526	53	150	26	249	747	174	77	67	60	2	532	3	(16)	(26)	20	2	13	0	(1)	(13)	79	107	274	4401
Ala Moana Center	12111	882	264	229	171	330	5729	4749	222	409	125	97	2	3998	261	23	8	10	38	41	11	4	(1)	20	77	0	29810
Total	584458	215112	175531	354034	107134	86527	285064	525670	170446	193790	59209	146612	13858	255168	26448	36275	25472	11234	16988	16846	9591	10425	7691	36785	274923	179799	3825091

Table 2-54. District-to-District User Benefits for Journey-to-Work/Home-Based-Work (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waiekele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	496	1029	1909	1821	129	357	2153	5422	2165	1153	75	275	15	495	52	93	(19)	(16)	2	9	(4)	0	4	168	237	1773	19795
Kaka'ako	4486	178	1411	2299	241	1788	7719	6964	3316	1749	120	454	8	536	211	88	55	(47)	115	187	10	7	26	248	456	660	33283
Mō'ili'ili	13059	4541	931	(118)	(216)	538	5786	7550	2356	1821	127	548	28	477	110	(39)	(60)	41	86	83	2	0	(7)	82	683	424	38833
Waikīkī	3490	352	763	1013	1358	(12)	2376	3548	1455	944	6	271	4	164	122	41	(2)	67	27	21	7	2	0	40	227	190	16473
Kaimukī-Wai'alae	11979	4134	1414	5368	1455	633	2876	4600	1543	1464	113	357	39	301	42	19	(4)	117	42	67	12	4	(4)	198	391	676	37837
Palama-Liliha	17995	7756	3424	3686	587	765	5742	13206	3246	3114	246	736	38	911	335	162	49	48	334	272	20	19	7	395	718	2197	66007
Kalihi-Iwilei	8551	6139	2630	2781	368	757	165	5939	1309	1409	53	380	4	501	93	76	21	4	213	139	7	0	(13)	199	263	1553	33541
Airport-Pearl Harbor	4431	1112	784	692	151	400	1350	1833	1351	566	71	220	18	1679	580	29	18	13	135	107	13	1	2	106	157	248	16065
Salt Lake-Āliamanu	21640	7777	4402	4478	1075	2423	9812	17117	4693	5757	386	1614	118	2538	891	323	162	108	617	565	51	31	28	539	1115	1776	90037
Pearl City-'Aiea	39349	11457	7946	7923	2043	3976	18466	26890	10599	4170	1251	4252	265	5454	746	356	135	331	1256	1285	131	19	25	988	3932	2588	155833
'Ewa	63296	20807	18361	60847	7269	6037	19897	18984	8742	11021	4688	13925	795	5560	1787	2251	1696	1197	1329	1608	518	219	(77)	2188	13809	4997	291753
Kapolei	27849	8880	8096	26002	3096	2940	8955	9770	4613	6943	3194	12421	865	4160	1353	1553	1202	458	716	761	224	128	102	1052	6139	2216	143687
Makakilo	19150	6180	5639	17648	2232	2064	6105	6176	2956	3686	1365	3131	337	1770	620	773	607	406	451	503	193	64	35	691	4493	1630	88908
Waipahu-Waiekele	42544	9644	19635	65671	3045	3001	9905	12861	5990	9586	1420	2288	252	2674	1390	1120	722	441	536	761	213	97	(63)	932	6536	6744	207944
Waiawa	24132	5730	11272	38880	1926	1687	6845	10569	4904	5405	1426	4840	319	3928	262	807	140	280	483	528	59	76	46	551	4098	4484	133679
Mililani	30737	10467	8251	10669	3155	3052	10080	13190	6025	8680	2170	6931	511	3333	802	3276	1737	457	663	856	28	281	173	997	7987	2461	136968
Wahiawa	16138	5475	4393	6228	1752	1639	5146	6826	3235	4772	1276	4449	293	2067	483	2637	3445	277	354	455	4	289	161	740	4644	1203	78383
East Honolulu	3911	1430	352	933	311	398	490	3298	827	688	130	359	23	311	19	0	(43)	12	26	22	5	13	(9)	65	312	34	13916
Kāne'ohe	(88)	2318	1027	1820	116	285	939	6006	1513	1685	118	515	24	628	122	113	(40)	(4)	9	15	(0)	1	17	126	877	781	18924
Kailua	(175)	2514	1045	2293	143	378	1488	4342	1050	1170	161	372	40	399	67	56	(64)	1	4	18	0	2	4	125	865	965	17262
Ko'olau Loa	322	291	197	533	65	22	(11)	780	89	210	23	109	4	97	9	2	3	4	3	0	0	32	(6)	18	460	139	3396
North Shore	12088	4213	3489	4691	1314	1142	3322	3621	1955	1755	348	1290	42	1121	448	1080	1828	203	147	297	71	1590	51	455	3544	938	51041
Wai'anae	31932	11811	9986	13930	4226	3648	9604	17873	7146	4804	1005	1356	268	2973	1364	1242	1081	542	878	835	135	89	855	1247	9853	2862	141543
Makiki-Mānoa	9857	3453	98	149	177	324	3413	5276	1918	1268	63	348	7	389	71	(79)	(4)	(26)	40	45	3	1	(4)	159	14	146	27108
UH Mānoa	722	423	154	32	36	24	100	432	102	63	2	33	0	62	4	(10)	(17)	4	2	8	0	0	0	12	26	71	2285
Ala Moana Center	0	0	0	0	0	21	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
Total	407890	138112	117609	280269	36052	38287	142731	213073	83098	83884	19838	61474	4319	42526	11984	15967	12647	4918	8469	9445	1702	2965	1352	12324	71837	41756	1864528

Table 2-55. District-to-District User Benefits for Journey-to-Work/Home-Based-Other (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	(10)	62	206	126	15	56	257	390	319	180	(3)	22	0	20	3	(0)	(2)	(1)	(1)	(1)	0	0	0	2	9	913	2562
Kaka'ako	154	(8)	138	132	4	275	795	360	324	189	0	2	0	27	13	3	0	(3)	0	8	0	1	0	33	29	345	2820
Mō'ili'ili	621	164	44	(0)	(2)	54	421	310	202	122	(1)	26	1	21	4	1	(4)	10	2	0	0	0	(0)	19	22	152	2190
Waikīkī	244	90	174	136	327	35	217	203	218	53	2	5	0	31	9	3	0	36	(0)	1	0	2	0	8	21	194	2010
Kaimukī-Wai'alae	236	90	136	213	206	46	74	112	67	39	3	4	0	34	2	1	(0)	27	1	0	0	0	(0)	34	19	265	1608
Palama-Liliha	464	284	137	91	24	72	194	751	286	261	23	7	1	36	18	2	0	1	14	8	0	2	(1)	18	17	734	3444
Kalihi-Iwilei	288	266	193	54	24	64	(13)	364	111	100	(0)	3	(1)	20	14	1	1	1	6	2	0	0	0	2	9	778	2287
Airport-Pearl Harbor	44	28	8	14	2	23	40	78	141	25	1	3	0	6	1	0	(0)	0	2	1	0	(0)	0	2	3	45	469
Salt Lake-Āliamanu	373	169	82	40	28	115	512	682	313	496	9	38	4	56	25	3	1	2	10	8	0	1	1	30	22	205	3225
Pearl City-'Aiea	405	224	153	75	72	126	272	613	663	221	29	83	14	275	27	13	2	26	25	14	2	1	(4)	51	112	330	3822
'Ewa	1115	703	632	364	262	285	2475	594	495	407	557	1117	114	348	58	41	18	100	38	38	7	4	(2)	196	586	889	11442
Kapolei	542	328	351	209	162	204	1330	380	309	242	301	1624	199	351	40	44	12	38	20	26	4	3	6	97	390	431	7644
Makakilo	516	219	254	160	99	121	1009	232	208	146	108	351	73	144	15	19	7	41	14	18	4	2	5	89	225	389	4467
Waipahu-Waikele	677	350	396	216	135	153	426	431	320	602	85	160	32	278	86	47	27	29	22	41	4	3	(9)	74	277	629	5490
Waiawa	471	232	267	167	146	132	287	356	355	439	99	351	50	468	(9)	41	(3)	27	21	13	2	4	11	57	235	389	4609
Mililani	486	320	290	252	125	151	295	328	247	481	85	181	30	330	100	250	79	20	14	29	1	17	30	71	335	488	5033
Wahiawa	378	186	155	146	108	84	189	244	189	225	38	122	38	208	56	218	187	11	9	22	0	26	17	58	218	358	3491
East Honolulu	81	6	15	50	22	12	(8)	53	9	5	1	3	0	7	(0)	(1)	(2)	(58)	0	(1)	0	0	(3)	(2)	(8)	12	193
Kāne'ohe	(8)	39	32	104	5	20	65	192	77	51	3	7	1	51	3	1	(2)	0	0	0	0	1	(1)	4	32	188	865
Kailua	(12)	79	37	45	5	22	65	127	78	38	3	26	1	33	4	2	(2)	(1)	0	0	0	1	(3)	4	32	167	749
Ko'olau Loa	(0)	7	2	5	0	1	(2)	13	4	10	1	1	1	3	1	(0)	0	0	0	0	0	0	(1)	1	9	23	79
North Shore	352	206	218	179	85	73	208	203	196	105	16	24	4	32	12	23	54	23	5	12	1	217	3	45	207	279	2782
Wai'anae	659	374	355	271	197	202	338	461	370	205	34	36	22	76	15	25	14	33	17	19	2	2	73	99	473	636	5008
Makiki-Mānoa	167	97	(0)	5	30	25	131	228	124	40	10	4	0	8	(1)	8	(3)	(4)	0	0	0	0	(1)	22	0	76	966
UH Mānoa	26	11	14	1	5	(0)	8	16	12	0	11	0	0	0	0	0	0	(0)	0	0	0	0	0	1	1	29	134
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	8268	4525	4291	3055	2084	2351	9586	7723	5637	4682	1414	4200	585	2862	496	746	385	355	218	259	28	286	119	1014	3277	8943	77389

Table 2-56. District-to-District User Benefits for Journey-to-Work/Work-Based (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	43	253	329	693	16	68	502	507	224	102	(6)	23	(0)	21	8	1	6	(3)	2	2	(0)	1	0	23	31	1192	4036
Kaka'ako	466	(97)	95	242	15	91	662	353	135	81	(2)	29	0	5	1	10	(0)	(1)	10	16	(0)	0	0	13	52	481	2653
Mō'ili'ili	576	167	217	19	(7)	35	410	347	84	38	3	6	0	14	(2)	(7)	(4)	(4)	10	17	0	0	0	4	83	256	2260
Waikīkī	77	(30)	57	312	120	(1)	108	102	41	20	0	18	0	0	0	1	(1)	1	(0)	(0)	0	0	0	2	8	53	889
Kaimukī-Wai'alae	87	148	122	976	141	3	61	162	66	42	0	15	0	10	2	(1)	(1)	3	(2)	(2)	0	(0)	(1)	6	28	356	2222
Palama-Liliha	549	472	265	506	35	53	233	614	129	118	4	21	0	46	15	10	8	2	14	13	1	1	(1)	19	52	771	3946
Kalihi-Iwilei	2878	1605	940	1325	104	177	204	773	353	163	16	64	(0)	54	28	10	2	19	59	37	0	0	(1)	53	72	1362	10298
Airport-Pearl Harbor	2743	881	630	836	129	312	717	151	609	228	7	73	4	81	49	16	9	9	60	60	2	1	0	78	135	769	8589
Salt Lake-Āliamanu	2855	1152	694	1300	145	217	1356	1217	405	220	29	81	7	94	44	12	(6)	8	89	71	2	0	1	77	147	914	11131
Pearl City-'Aiea	4940	1738	1288	2090	341	470	2011	2270	1198	(86)	50	190	26	191	(5)	14	(9)	53	165	221	7	(0)	(6)	154	386	1279	18975
'Ewa	3767	1452	1438	2822	483	344	1408	1083	623	554	425	719	45	316	153	111	68	77	80	137	13	6	(2)	155	1402	1072	18750
Kapolei	4717	1864	1780	3466	675	437	1700	1435	821	809	260	1102	106	550	237	179	94	106	121	178	29	7	(0)	249	1615	1056	23594
Makakilo	971	415	371	789	118	113	400	284	135	163	48	171	16	121	40	42	29	20	21	28	4	2	2	47	376	267	4994
Waipahu-Waikele	3119	1230	1019	1714	309	298	1343	1320	704	1033	196	229	31	244	246	160	90	46	65	92	29	8	(11)	110	702	766	15091
Waiawa	985	402	280	662	68	96	481	626	267	211	60	166	46	136	13	57	6	9	18	30	11	3	(2)	49	278	289	5245
Mililani	2051	724	590	1135	168	220	783	800	392	487	116	325	36	301	140	212	201	30	65	51	1	17	5	89	590	487	10016
Wahiawa	1329	514	433	900	137	124	576	525	268	369	65	296	12	226	91	305	324	26	36	59	0	15	15	70	439	495	7650
East Honolulu	(2)	(3)	25	90	25	7	(21)	72	12	1	2	2	0	5	1	(2)	(1)	(18)	0	(0)	0	0	0	3	19	9	225
Kāne'ohe	(45)	206	124	319	6	23	114	309	112	84	2	22	0	18	9	(0)	(3)	(0)	0	0	0	0	(1)	12	57	311	1678
Kailua	(98)	240	111	367	19	28	134	227	85	65	4	15	1	19	0	(1)	(4)	(1)	0	0	0	0	9	13	56	375	1666
Ko'olau Loa	(7)	28	18	103	2	2	(7)	60	8	7	1	12	0	3	1	1	0	(0)	0	0	0	2	(1)	2	66	70	370
North Shore	742	299	301	548	113	68	232	139	124	70	19	72	1	33	34	65	102	14	11	14	4	124	2	20	294	213	3660
Wai'anae	2966	1319	1198	2702	521	300	976	722	456	267	60	74	21	159	65	68	40	76	56	111	4	4	106	174	1362	960	14770
Makiki-Mānoa	133	70	31	27	8	2	94	105	59	14	0	27	0	7	1	7	(3)	(0)	(0)	(0)	0	0	(0)	20	(1)	3	604
UH Mānoa	64	69	90	35	22	12	47	33	9	3	0	2	0	2	0	(1)	(2)	4	0	0	0	0	0	10	20	103	521
Ala Moana Center	1292	343	232	195	76	144	678	246	129	65	(1)	7	0	6	3	13	1	5	17	22	1	0	1	2	61	0	3536
Total	37198	15459	12676	24172	3788	3643	15203	14482	7449	5129	1355	3761	353	2661	1176	1281	946	482	895	1155	108	190	115	1454	8330	13910	177369

Table 2-57. District-to-District User Benefits for Journey-to-Work/Non-Work-Based (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ōhe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	(172)	179	276	131	(4)	214	469	315	209	229	1	21	14	79	33	14	(5)	(1)	1	(0)	0	1	10	(19)	6	986	2986
Kaka'ako	298	(156)	158	80	12	254	623	252	191	138	18	25	4	70	10	17	(4)	(1)	22	16	(0)	3	0	(3)	37	842	2908
Mō'ili'ili	422	109	145	27	3	81	338	233	113	115	6	32	3	37	22	3	(5)	1	9	6	(0)	0	(9)	16	51	166	1925
Waikīkī	56	(5)	127	489	237	14	82	74	66	73	3	3	4	21	37	2	(1)	10	(0)	(0)	0	(0)	(2)	4	7	88	1389
Kaimukī-Wai'alae	31	54	107	323	228	13	29	90	63	45	6	21	1	26	5	(1)	(2)	12	(0)	(1)	(1)	(0)	(2)	15	10	202	1273
Palama-Liliha	111	203	151	57	10	56	154	439	157	195	33	23	4	104	23	9	(2)	1	19	13	(0)	2	8	10	31	353	2164
Kalihi-Iwilei	745	731	472	222	62	215	(83)	588	541	395	17	86	13	127	48	12	4	(1)	59	25	3	2	(6)	37	30	685	5032
Airport-Pearl Harbor	452	292	180	99	66	313	417	77	850	557	61	113	3	169	88	34	13	19	45	47	3	2	13	32	77	257	4279
Salt Lake-Āliamanu	243	199	126	122	51	108	477	881	400	509	67	108	7	206	87	25	6	11	53	38	3	1	2	35	56	159	3980
Pearl City-'Aiea	203	223	178	134	83	85	251	413	341	(246)	51	195	30	325	(29)	(1)	(10)	23	47	50	13	1	(9)	56	154	122	2683
'Ewa	212	268	291	221	134	126	190	216	165	177	494	409	39	135	45	49	16	50	31	43	9	5	(5)	82	272	123	3797
Kapolei	339	409	397	342	164	175	341	303	239	256	336	1234	212	352	104	41	27	115	53	49	24	5	(9)	118	364	292	6282
Makakilo	40	80	103	73	47	50	56	100	35	46	57	139	25	48	29	18	10	12	8	11	4	1	2	21	107	28	1152
Waipahu-Waikele	198	145	226	202	96	97	174	208	113	380	180	208	46	160	126	73	34	25	33	35	6	4	(16)	58	237	52	3099
Waiawa	42	80	94	71	46	31	48	133	37	104	76	126	22	144	(37)	(1)	(14)	5	8	13	11	1	(2)	28	59	33	1159
Mililani	168	93	100	137	82	75	133	99	93	142	100	155	42	232	86	150	176	16	27	21	1	18	15	24	151	160	2494
Wahiawa	72	108	65	107	41	31	100	53	83	118	44	137	14	129	27	121	309	36	15	31	(0)	12	9	30	87	167	1946
East Honolulu	(2)	(3)	4	15	24	10	(8)	11	5	12	(2)	1	(0)	3	1	(0)	(4)	(180)	0	(1)	0	0	(5)	(12)	(19)	5	(145)
Kāne'ōhe	(8)	11	12	16	2	4	40	78	40	35	4	19	14	41	21	7	(2)	0	0	0	0	0	(6)	(3)	21	47	393
Kailua	(5)	44	26	26	6	14	26	42	25	42	4	37	1	43	11	3	(4)	(1)	0	0	0	2	(9)	1	17	45	396
Ko'olau Loa	(1)	(4)	6	3	(1)	(1)	1	7	5	5	11	0	0	10	(0)	0	0	(0)	0	0	0	2	(2)	0	9	9	61
North Shore	52	48	55	80	23	45	42	63	22	47	7	15	0	30	6	13	15	6	4	5	2	87	10	18	70	84	850
Wai'anae	139	108	117	140	39	65	84	123	153	82	22	15	10	44	10	25	7	30	8	13	2	2	(77)	28	157	120	1465
Makiki-Mānoa	18	27	29	8	11	20	36	60	24	29	2	17	0	15	1	(2)	(6)	1	(0)	(0)	0	0	(1)	49	(1)	3	342
UH Mānoa	(44)	4	108	7	34	(5)	2	24	11	7	(1)	1	0	(0)	1	(0)	0	10	(1)	(1)	(0)	0	(2)	7	14	43	219
Ala Moana Center	426	210	113	44	49	96	269	64	53	39	1	21	0	29	4	3	1	5	12	7	0	1	(1)	1	14	0	1460
Total	4036	3458	3666	3176	1546	2190	4293	4945	4031	3533	1600	3161	508	2580	759	610	558	203	453	420	80	154	(92)	635	2019	5070	53590

Table 2-58. District-to-District User Benefits for Non-Home-Based Direct Demand (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	(3101)	429	0	0	0	0	7735	9321	0	615	230	241	0	7749	494	0	0	0	0	0	0	0	0	0	0	8889	32603
Kaka'ako	562	0	0	0	0	0	1413	1734	0	80	47	41	0	1597	102	0	0	0	0	0	0	0	0	0	0	(82)	5495
Mō'ili'ili	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waikīkī	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kaimukī-Wai'alae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Palama-Liliha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kalihi-Iwilei	6328	1396	0	0	0	0	177	2242	0	267	195	87	0	6000	369	0	0	0	0	0	0	0	0	0	0	4032	21093
Airport-Pearl Harbor	6569	1333	0	0	0	0	459	(236)	0	424	892	657	0	16733	1032	0	0	0	0	0	0	0	0	0	0	3798	31661
Salt Lake-Āliamanu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pearl City-'Aiea	553	137	0	0	0	0	275	299	0	0	142	107	0	2685	167	0	0	0	0	0	0	0	0	0	0	241	4605
'Ewa	190	46	0	0	0	0	167	811	0	219	120	378	0	6320	380	0	0	0	0	0	0	0	0	0	0	81	8710
Kapolei	116	38	0	0	0	0	64	512	0	120	359	0	0	6067	379	0	0	0	0	0	0	0	0	0	0	31	7685
Makakilo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waipahu-Waikele	6469	1421	0	0	0	0	6421	15696	0	2752	5367	6018	0	10234	374	0	0	0	0	0	0	0	0	0	0	4165	58919
Waiawa	415	91	0	0	0	0	394	970	0	171	319	373	0	289	0	0	0	0	0	0	0	0	0	0	0	263	3285
Mililani	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wahiawa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Honolulu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kāne'ohe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kailua	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ko'olau Loa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North Shore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wai'anae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Makiki-Mānoa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UH Mānoa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ala Moana Center	10077	172	0	0	0	0	4628	4398	0	277	112	60	0	3955	247	0	0	0	0	0	0	0	0	0	0	0	23926
Total	28178	5062	0	0	0	0	21732	35747	0	4926	7783	7963	0	61630	3545	0	0	0	0	0	0	0	0	0	0	21417	197982

Table 2-59. District-to-District User Benefits for Non-Work-Related/Home-Based-College (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	(37)	0	2	0	(594)	0	37	0	0	0	0	145	0	979	0	0	0	(0)	12	0	(8)	0	0	0	2680	0	3215
Kaka'ako	279	0	40	0	(640)	0	1486	0	0	0	0	307	0	1388	0	0	0	1	51	0	2	0	0	0	2821	0	5736
Mō'ili'ili	419	0	1	0	(1376)	0	720	0	0	0	0	111	0	1667	0	0	0	17	39	0	37	0	0	0	2887	0	4520
Waikīkī	348	0	10	0	1996	0	215	0	0	0	0	217	0	591	0	0	0	(9)	2	0	4	0	0	0	1583	0	4958
Kaimukī-Wai'alae	282	0	17	0	385	0	240	0	0	0	0	247	0	990	0	0	0	3	0	0	30	0	0	0	1462	0	3657
Palama-Liliha	1308	0	50	0	384	0	(31)	0	0	0	0	652	0	3001	0	0	0	5	134	0	63	0	0	0	5630	0	11195
Kalihi-Iwilei	801	0	11	0	105	0	92	0	0	0	0	214	0	1375	0	0	0	36	72	0	20	0	0	0	1804	0	4530
Airport-Pearl Harbor	924	0	15	0	359	0	332	0	0	0	0	249	0	1059	0	0	0	6	80	0	40	0	0	0	3200	0	6264
Salt Lake-Āliamanu	3415	0	64	0	1000	0	2143	0	0	0	0	1289	0	4905	0	0	0	33	179	0	216	0	0	0	14748	0	27993
Pearl City-'Aiea	5931	0	113	0	3061	0	3502	0	0	0	0	2485	0	11310	0	0	0	82	295	0	480	0	0	0	30192	0	57452
'Ewa	5754	0	101	0	4267	0	3735	0	0	0	0	7230	0	11492	0	0	0	76	305	0	731	0	0	0	9421	0	43110
Kapolei	3001	0	220	0	2271	0	1754	0	0	0	0	907	0	6486	0	0	0	35	197	0	408	0	0	0	4957	0	20237
Makakilo	1992	0	137	0	1689	0	1147	0	0	0	0	1018	0	3221	0	0	0	0	122	0	200	0	0	0	3374	0	12901
Waipahu-Waikele	4170	0	30	0	2855	0	2727	0	0	0	0	2869	0	10420	0	0	0	31	186	0	502	0	0	0	17177	0	40966
Waiawa	2806	0	22	0	1932	0	1943	0	0	0	0	2530	0	5982	0	0	0	46	135	0	201	0	0	0	9242	0	24838
Mililani	4702	0	15	0	3135	0	2669	0	0	0	0	4278	0	10384	0	0	0	32	324	0	38	0	0	0	13252	0	38829
Wahiawa	2054	0	80	0	1617	0	1344	0	0	0	0	1755	0	4659	0	0	0	6	148	0	36	0	0	0	9358	0	21056
East Honolulu	316	0	17	0	611	0	(131)	0	0	0	0	215	0	776	0	0	0	0	13	0	14	0	0	0	3522	0	5353
Kāne'ohe	67	0	21	0	101	0	(344)	0	0	0	0	304	0	1722	0	0	0	0	0	0	0	0	0	0	7416	0	9288
Kailua	41	0	16	0	(22)	0	(435)	0	0	0	0	236	0	2143	0	0	0	0	0	0	0	0	0	0	6909	0	8888
Ko'olau Loa	31	0	0	0	13	0	(17)	0	0	0	0	25	0	103	0	0	0	1	0	0	0	0	0	0	912	0	1067
North Shore	960	0	13	0	852	0	552	0	0	0	0	448	0	1177	0	0	0	0	12	0	55	0	0	0	4805	0	8873
Wai'anae	2998	0	71	0	2490	0	1702	0	0	0	0	1892	0	4506	0	0	0	69	172	0	256	0	0	0	6978	0	21133
Makiki-Mānoa	529	0	9	0	(342)	0	134	0	0	0	0	235	0	1104	0	0	0	(0)	17	0	11	0	0	0	(129)	0	1568
UH Mānoa	20	0	1	0	18	0	3	0	0	0	0	19	0	103	0	0	0	0	0	0	0	0	0	0	6	0	169
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	43109	0	1079	0	26165	0	25518	0	0	0	0	29877	0	91542	0	0	0	470	2493	0	3337	0	0	0	164207	0	387798

Table 2-60. District-to-District User Benefits for Non-Work-Related/Home-Based-School (K-12) (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	12	(134)	97	28	32	495	381	75	251	34	19	0	0	32	0	10	0	(2)	3	2	(0)	0	0	204	4	0	1543
Kaka'ako	(71)	(359)	182	15	17	1012	533	26	144	26	0	0	0	0	0	0	0	5	8	22	0	0	(2)	360	45	0	1964
Mō'ili'ili	34	(19)	193	(12)	(48)	304	147	12	61	(0)	4	0	0	0	0	0	0	1	0	14	12	0	0	138	97	0	940
Waikīkī	(6)	(6)	179	11	52	14	56	17	22	5	0	0	0	10	0	0	(1)	(2)	0	0	0	0	0	11	7	0	369
Kaimukī-Wai'alae	(20)	(60)	432	134	1071	170	73	29	54	11	0	4	0	11	9	1	0	260	4	1	9	0	(6)	273	76	0	2535
Palama-Liliha	122	(34)	134	7	73	1470	920	241	555	491	0	0	0	103	47	0	8	12	228	70	14	4	5	316	72	0	4857
Kalihi-Iwilei	181	189	161	14	50	1946	(690)	62	632	358	0	0	0	93	33	4	5	11	66	20	5	5	0	320	35	0	3500
Airport-Pearl Harbor	24	33	19	0	36	309	112	1445	1097	231	3	0	0	91	22	6	7	6	25	26	12	3	(2)	51	13	0	3569
Salt Lake-Āliamanu	187	170	191	24	121	1477	1007	539	1598	1955	39	8	0	412	136	41	12	39	130	118	69	4	48	293	152	0	8768
Pearl City-'Aiea	132	302	392	58	437	1172	919	269	2558	137	105	109	80	4889	(35)	57	39	118	168	204	279	32	(5)	606	717	0	13736
'Ewa	553	1304	2226	174	2037	3525	951	837	1185	5177	11145	3747	737	1585	293	258	268	710	231	478	1247	105	138	2925	4096	0	45933
Kapolei	362	785	1245	183	1125	2206	463	613	666	3173	1873	4306	1957	1065	181	113	168	432	157	252	788	54	269	1776	2307	0	26519
Makakilo	228	595	954	112	867	1625	356	380	512	2293	593	507	1083	574	109	85	97	304	116	244	836	59	115	1360	1747	0	15753
Waipahu-Waikele	592	1319	2099	202	2021	3397	913	855	1295	3083	(1391)	1327	633	3020	771	1108	612	752	251	374	659	197	(68)	2872	3983	0	30874
Waiawa	164	270	517	93	522	880	239	290	388	1312	573	573	317	2166	163	553	199	170	53	114	272	118	94	677	1101	0	11816
Mililani	189	344	676	115	636	1245	300	296	393	778	218	159	103	1432	800	5815	1587	235	70	165	63	312	257	900	1550	0	18641
Wahiawa	69	135	341	57	303	627	184	178	264	214	118	48	24	448	192	6845	5859	112	32	67	8	609	208	437	893	0	18270
East Honolulu	28	12	46	6	27	126	24	49	74	39	29	8	12	82	13	1	(15)	329	1	7	1	18	(51)	612	101	0	1579
Kāne'ohe	2	(10)	113	140	153	192	22	151	137	223	4	15	9	120	29	11	9	6	37	24	0	29	(28)	151	415	0	1953
Kailua	4	(11)	78	29	26	163	29	124	158	128	15	11	0	102	19	6	(4)	3	5	16	0	4	(52)	125	296	0	1273
Ko'olau Loa	3	2	29	4	9	7	(3)	7	(5)	11	2	1	0	22	0	3	0	3	1	0	0	7	(37)	37	108	0	212
North Shore	152	266	508	48	498	921	219	239	292	200	42	15	12	150	31	172	520	182	21	92	20	4291	104	695	1056	0	10745
Wai'anae	142	444	797	68	694	1350	317	325	468	361	169	64	194	243	48	56	85	222	101	135	318	31	3048	1020	1506	0	12206
Makiki-Mānoa	67	(20)	(135)	(4)	(31)	216	232	16	82	13	0	0	5	5	0	0	(1)	(27)	0	8	2	0	0	885	(10)	0	1306
UH Mānoa	3	1	205	0	5	(2)	(2)	0	0	1	0	0	0	6	0	0	0	2	1	0	0	0	0	1	25	0	245
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3153	5516	11678	1507	10733	24847	7702	7073	12881	20255	13561	10901	5167	16660	2862	15145	9454	3883	1708	2453	4613	5884	4034	17044	20391	0	239107

Table 2-61. District-to-District User Benefits for Non-Work-Related/Home-Based-Shopping (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ōhe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	(14)	475	563	0	(8)	64	1053	438	254	116	1	36	0	22	(1)	9	(1)	(0)	1	(1)	0	0	0	4	(0)	2654	5667
Kaka'ako	134	(227)	317	0	15	94	1067	267	138	99	5	19	0	18	2	2	0	1	1	2	0	0	0	5	1	2458	4419
Mō'ili'ili	229	172	137	0	58	4	276	335	74	99	0	89	0	38	(1)	8	0	0	0	(2)	0	0	0	13	42	1236	2806
Waikīkī	1	27	(137)	0	512	(21)	367	297	193	156	27	225	0	21	3	1	19	0	(0)	(0)	0	0	(1)	(43)	53	365	2065
Kaimukī-Wai'alae	65	120	58	0	648	36	376	332	159	263	37	106	0	47	1	1	0	9	(0)	1	(0)	0	(0)	7	45	466	2776
Palama-Liliha	794	1024	443	0	106	820	3017	3266	1386	1093	16	94	26	65	22	24	1	3	42	11	0	0	0	70	24	3175	15523
Kalihi-Iwilei	315	697	118	0	29	31	(618)	1187	408	265	1	11	0	48	1	1	(0)	0	11	1	0	0	0	31	6	1265	3810
Airport-Pearl Harbor	43	21	12	0	15	14	190	234	912	329	1	34	1	27	1	1	5	0	0	0	0	0	0	0	1	54	1894
Salt Lake-Āliamanu	301	153	59	0	34	104	1662	3867	2240	2687	31	239	2	179	11	8	1	2	59	5	12	0	0	17	13	544	12229
Pearl City-'Aiea	131	178	120	0	51	112	780	1366	1136	2508	57	500	10	736	10	5	1	9	46	16	0	0	18	15	22	316	8141
'Ewa	6	14	35	0	2	17	179	289	297	933	2609	3044	13	2075	30	44	13	1	(7)	11	0	(0)	0	1	(0)	35	9642
Kapolei	6	1	1	0	1	4	12	69	31	229	69	662	2	241	3	4	1	0	0	(0)	8	0	1	0	(0)	0	1345
Makakilo	2	3	2	0	1	13	32	170	149	317	93	283	1	315	11	2	2	0	8	0	0	7	(1)	7	0	45	1462
Waipahu-Waikele	32	16	33	0	11	22	258	647	459	2654	272	266	10	1181	(17)	(3)	1	1	5	(0)	0	(0)	10	2	2	123	5984
Waiawa	134	170	116	0	82	58	446	978	829	1409	193	1276	89	1973	25	(3)	8	37	60	37	0	(0)	1	41	32	245	8235
Mililani	10	17	44	0	(9)	6	167	454	364	1315	129	482	35	596	6	2	(2)	(6)	(3)	(4)	0	0	14	1	9	184	3810
Wahiawa	7	17	31	0	(25)	4	38	128	161	39	66	302	4	175	(0)	0	(38)	(7)	(3)	(3)	0	0	1	11	(9)	124	1024
East Honolulu	34	90	(30)	0	56	2	220	489	235	314	10	135	1	63	32	27	(1)	(16)	0	1	0	0	(0)	(4)	1	76	1735
Kāne'ōhe	20	143	63	0	4	19	401	639	264	463	14	88	1	80	28	35	(1)	0	21	4	0	0	(54)	2	8	488	2730
Kailua	2	132	98	0	(2)	(2)	170	352	168	287	(1)	166	2	(1)	10	33	(14)	0	(0)	0	0	1	(1)	3	0	716	2118
Ko'olau Loa	0	58	34	0	(4)	(1)	90	323	119	222	(18)	61	(0)	74	17	(0)	0	0	0	0	0	0	3	19	0	213	1210
North Shore	19	46	22	0	15	(3)	65	393	274	(70)	29	(76)	(7)	43	0	0	0	10	(0)	(0)	0	0	(1)	43	0	315	1117
Wai'anae	13	305	56	0	(15)	5	171	1209	847	946	101	1557	24	265	58	39	37	(39)	(34)	(59)	(42)	(43)	358	17	4	115	5896
Makiki-Mānoa	148	111	413	0	(58)	(68)	931	603	244	253	31	90	22	17	(0)	11	(1)	(3)	3	3	0	0	(15)	51	(11)	1515	4289
UH Mānoa	18	(5)	9	0	8	1	29	28	3	5	0	0	0	1	0	0	0	0	0	0	0	0	0	6	4	21	128
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2450	3757	2615	0	1528	1333	11379	18360	11346	16931	3775	9691	235	8297	251	250	31	2	209	24	(21)	(36)	335	320	246	16748	110054

Table 2-62. District-to-District User Benefits for Non-Work-Related/Home-Based-Other (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	33	469	913	(18)	(134)	(68)	1074	1106	709	158	27	54	10	125	(0)	(2)	(28)	0	4	(8)	0	0	28	(27)	54	3449	7925
Kaka'ako	560	(135)	574	361	20	867	2239	707	559	111	3	90	1	18	12	72	28	13	73	77	(4)	8	8	87	3	1097	7447
Mō'ili'ili	2264	751	5	(246)	71	(271)	1266	749	251	205	16	88	32	64	42	10	9	(29)	(5)	22	9	0	7	160	147	384	6002
Waikīkī	(631)	(246)	(250)	493	458	(420)	534	515	387	168	(21)	78	23	72	32	(16)	46	(39)	(5)	(6)	(3)	(6)	(24)	(243)	293	116	1303
Kaimukī-Wai'alae	133	459	168	1041	661	(8)	1039	846	241	360	17	71	35	100	75	52	18	63	(0)	(16)	13	37	23	(301)	228	847	6200
Palama-Liliha	3206	4088	1345	189	159	749	2476	4512	2086	854	71	219	28	327	69	67	(2)	17	105	43	13	15	(8)	(39)	159	5138	25886
Kalihi-Iwilei	2428	3075	1065	570	108	(323)	(47)	1822	786	406	21	95	0	143	44	19	(8)	0	67	10	0	0	11	211	187	3058	13750
Airport-Pearl Harbor	1102	475	348	216	145	553	999	1027	1828	349	34	119	19	100	17	19	(20)	20	62	62	0	0	49	178	59	496	8256
Salt Lake-Āliamanu	6621	3202	1521	1500	556	1970	6716	6374	1730	2712	216	359	38	509	213	92	37	115	322	274	49	28	73	577	365	2498	38669
Pearl City-'Aiea	6945	3545	2445	2043	1489	2563	6606	8910	8706	1434	465	898	184	2385	609	33	(11)	208	369	747	178	(4)	89	1036	330	2948	55152
'Ewa	2226	1813	1573	274	740	1093	3136	6207	4217	4741	3361	3773	537	3638	827	694	414	79	182	200	(25)	48	38	721	402	1112	42021
Kapolei	1633	1658	902	993	687	702	1438	4154	2306	2735	978	2241	255	1350	511	270	306	84	231	392	30	2	199	436	321	759	25569
Makakilo	1066	1205	736	691	491	520	820	2958	1663	2063	454	278	41	920	336	265	246	44	165	149	(70)	12	(15)	315	179	530	16065
Waipahu-Waikele	2816	1411	1373	284	734	1151	3079	5393	4297	6404	730	759	303	2034	676	27	109	179	177	221	55	(14)	111	580	144	1221	34252
Waiawa	3669	2709	2088	2164	1465	1468	2910	3656	3543	2007	630	1180	266	2714	50	14	(7)	382	466	1006	149	(1)	253	839	459	1991	36070
Mililani	3293	1094	830	799	249	511	1126	1499	1341	329	336	494	97	560	59	20	(7)	71	48	74	1	0	91	264	109	1202	14491
Wahiawa	323	672	347	693	37	75	288	389	663	(56)	127	396	110	122	(2)	(2)	(25)	(44)	(45)	(153)	0	0	72	(46)	83	873	4898
East Honolulu	214	328	(158)	147	65	(10)	532	884	457	415	(3)	20	15	128	101	3	(102)	(26)	4	7	2	2	(182)	(280)	40	198	2802
Kāne'ohe	241	1354	652	(17)	56	61	1328	1756	1015	569	145	45	83	266	170	23	(50)	3	21	5	0	0	(49)	62	20	1786	9547
Kailua	(119)	1230	555	(85)	20	(111)	404	1369	688	445	4	145	22	265	176	(32)	(155)	0	(0)	0	0	0	(207)	42	2	1799	6459
Ko'olau Loa	(17)	365	212	(61)	(6)	(42)	240	669	274	236	(5)	(51)	32	89	44	17	0	0	0	0	0	0	(342)	52	0	468	2174
North Shore	112	631	581	846	221	14	117	772	600	(129)	20	(47)	32	(43)	0	(0)	0	(2)	(2)	(3)	0	0	(88)	177	265	758	4833
Wai'anae	332	1868	318	312	57	434	591	2950	1784	1566	169	1441	91	509	482	279	311	(792)	(104)	(683)	(770)	(97)	1339	(86)	100	294	12693
Makiki-Mānoa	1212	215	331	(48)	(72)	(359)	1530	1114	445	287	21	48	24	45	61	2	(23)	(99)	17	38	1	2	9	133	43	1020	6001
UH Mānoa	21	4	(6)	(16)	12	4	41	65	19	(5)	45	0	0	6	(1)	0	0	1	0	6	0	0	(8)	(6)	4	28	217
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	39686	32240	18468	13124	8291	11122	40480	60403	40597	28363	7861	12796	2278	16446	4603	1926	1084	249	2154	2466	(370)	31	1477	4844	3995	34070	388683

Table 2-63. District-to-District User Benefits for Non-Work-Related/Non-Home-Based (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																									Total	
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa		Ala Moana
Downtown	132	235	88	(7)	(19)	9	432	250	136	91	10	22	14	20	16	7	3	(2)	0	0	1	4	5	18	0	999	2464
Kaka'ako	241	(494)	187	13	9	202	503	114	131	60	12	57	7	29	13	11	10	3	11	16	5	4	15	15	3	1661	2841
Mō'ili'ili	223	3	77	(35)	16	11	227	115	52	55	10	21	4	42	10	14	(2)	(7)	8	10	4	4	(5)	130	26	1873	2887
Waikīkī	(30)	(25)	(14)	1269	103	(26)	28	46	40	40	(16)	14	15	12	11	5	5	(1)	(2)	(2)	(1)	(1)	(6)	(17)	12	22	1479
Kaimukī-Wai'alae	(36)	5	(4)	87	268	(24)	42	87	33	52	11	26	38	26	13	4	(5)	7	(4)	(3)	(2)	1	(11)	(51)	22	105	686
Palama-Liliha	7	148	9	(22)	(14)	177	(116)	378	137	154	9	31	4	66	16	6	(2)	(2)	8	(1)	(0)	1	7	(18)	1	253	1240
Kalihi-Iwilei	533	758	245	64	57	12	(1097)	774	675	630	53	71	9	86	37	9	10	4	55	28	10	2	(2)	54	53	587	3716
Airport-Pearl Harbor	363	179	144	44	95	372	608	406	1346	380	79	106	18	260	124	19	6	21	38	297	13	18	52	53	39	162	5241
Salt Lake-Āliamanu	170	191	86	52	20	130	740	1115	900	686	68	133	24	317	114	18	23	18	28	95	12	20	66	31	32	129	5219
Pearl City-'Aiea	172	134	65	45	100	137	344	451	753	(446)	111	271	53	696	83	(25)	(16)	20	65	66	30	(5)	35	30	15	144	3326
'Ewa	6	33	9	(11)	22	21	43	94	101	140	1088	342	21	197	41	24	19	8	8	(4)	(5)	2	3	4	3	36	2244
Kapolei	22	91	41	34	57	32	61	167	171	308	277	1159	103	277	32	29	38	(4)	10	33	(1)	(4)	45	7	8	47	3039
Makakilo	6	30	3	3	3	4	15	25	19	54	28	17	2	55	30	9	14	1	3	3	(1)	1	(1)	2	2	19	346
Waipahu-Waikele	34	35	52	1	42	37	106	230	278	955	111	192	38	398	141	25	16	8	15	24	26	(1)	24	12	19	105	2924
Waiawa	26	36	14	32	27	27	27	91	92	91	33	61	21	136	3	4	(0)	8	16	28	6	(0)	24	5	5	42	856
Mililani	9	22	21	12	9	16	12	50	43	(21)	17	31	9	27	11	13	(0)	1	4	14	0	0	9	6	6	33	355
Wahiawa	7	21	1	7	(3)	1	2	8	20	(11)	14	31	7	14	(0)	(0)	(70)	(3)	(4)	(6)	0	0	9	(3)	(0)	25	64
East Honolulu	(3)	2	(2)	2	14	(1)	10	40	16	26	1	28	2	16	8	(0)	(6)	(0)	(0)	(0)	(0)	(0)	(14)	(10)	0	3	130
Kāne'ohe	(2)	24	11	(3)	(1)	(3)	33	63	55	43	15	19	3	24	13	2	(9)	0	0	(0)	0	0	(16)	2	0	34	308
Kailua	(3)	43	11	(4)	(2)	(5)	24	74	54	74	35	55	5	37	19	0	(16)	0	0	0	0	0	(32)	3	0	78	449
Ko'olau Loa	(0)	16	4	(2)	(0)	(1)	12	23	10	17	19	(2)	1	23	4	0	0	0	0	0	0	0	(27)	1	0	22	119
North Shore	2	8	3	8	3	1	3	15	13	(4)	(1)	8	8	0	0	(0)	0	1	0	0	0	0	(4)	3	4	24	95
Wai'anae	(11)	40	(7)	(7)	(11)	7	(7)	51	28	51	5	46	2	28	25	11	11	(15)	(12)	(19)	(24)	(6)	25	(5)	(3)	18	220
Makiki-Mānoa	(5)	(18)	88	(4)	(4)	(46)	63	69	32	37	15	12	2	15	5	(1)	(5)	(9)	1	1	1	3	(4)	41	(9)	65	344
UH Mānoa	(3)	(35)	(48)	(6)	10	(7)	21	24	17	3	9	5	1	4	(2)	(6)	(7)	(1)	0	0	0	(1)	(3)	48	7	(20)	10
Ala Moana Center	317	157	(81)	(11)	47	68	148	40	40	29	12	9	2	8	7	7	6	(0)	10	12	10	3	(1)	16	2	0	859
Total	2177	1638	1003	1562	848	1153	2284	4798	5192	3492	2023	2765	412	2814	773	187	25	53	260	592	83	45	193	377	245	6465	41459

Table 2-64. District-to-District User Benefits for Visitors (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	0	0	37	8	111	1	74	301	0	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	883	1521
Kaka'ako	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	0	22
Mō'ili'ili	3967	301	0	(350)	109	110	1060	3723	0	1458	0	0	0	0	0	0	0	58	0	0	211	541	0	(34)	15	1	11172
Waikīkī	(4427)	(44)	254	1145	11427	(119)	1058	52691	114	17762	0	0	0	5247	0	163	308	14	0	0	(303)	(305)	136	(1494)	(149)	2647	86125
Kaimukī-Wai'alae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Palama-Liliha	0	0	0	0	0	0	196	474	48	0	0	0	0	273	0	0	0	0	0	0	0	0	0	0	0	0	991
Kalihi-Iwilei	1	4	13	117	24	0	(1)	59	54	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	211	500
Airport-Pearl Harbor	2381	170	447	6691	1997	1214	398	2537	0	565	0	0	0	62	0	0	0	179	0	0	119	128	0	104	150	4653	21796
Salt Lake-Āliamanu	0	4352	125	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4484
Pearl City-'Aiea	194	10	38	454	66	99	37	43	0	36	0	0	0	0	0	0	0	13	128	0	8	(2)	0	7	9	483	1623
'Ewa	(4)	(1)	(1)	(9)	0	0	0	3	0	2	0	0	0	0	0	0	0	(1)	0	32	(1)	(0)	0	(1)	(0)	6	25
Kapolei	5796	470	1030	17128	2027	259	895	7095	0	2174	0	0	0	0	0	0	0	365	0	0	0	421	0	211	343	18759	56972
Makakilo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waipahu-Waikele	0	0	0	0	0	0	0	0	0	0	0	0	0	634	0	0	0	0	0	0	0	0	0	0	0	0	634
Waiawa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mililani	0	0	153	0	0	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182
Wahiawa	51	3	7	183	24	1	0	42	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	(0)	1	191	508
East Honolulu	(4)	2	2	15	46	1	1	234	0	93	0	0	0	0	0	0	0	0	0	0	(0)	(0)	0	0	0	16	406
Kāne'ohe	(7)	0	58	9	71	(1)	40	118	0	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	477	812
Kailua	(3)	41	20	3	29	(0)	17	62	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	270	460
Ko'olau Loa	(17)	0	156	28	31	(2)	111	328	0	122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1600	2358
North Shore	0	12	35	514	50	(1)	0	75	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	(2)	(3)	504	1199
Wai'anae	383	18	70	1229	80	11	48	888	0	163	0	0	0	0	0	0	0	(11)	0	0	(1)	(0)	0	(18)	10	719	3590
Makiki-Mānoa	0	6	0	1	6	(1)	223	534	0	12	0	23	0	585	0	0	36	1	0	0	0	124	0	(0)	0	0	1550
UH Mānoa	0	0	0	0	0	0	0	0	0	0	0	0	0	349	0	0	0	0	0	0	0	0	0	0	0	0	349
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	8313	5345	2447	27166	16100	1601	4157	69213	216	22595	0	23	0	7150	0	163	344	618	128	32	33	906	158	(1228)	376	31420	197277

Table 2-65. District-to-District User Benefits for Ground Access Air Passengers (in minutes)—2030 First Project Airport Alternative vs. 2030 TSM Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	0	0	0	0	0	0	0	2651	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2651
Kaka'ako	0	0	0	0	0	0	0	3665	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3665
Mō'ili'ili	0	0	0	0	0	0	0	7177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7177
Waikīkī	0	0	0	0	0	0	0	42799	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42799
Kaimukī-Wai'alae	0	0	0	0	0	0	0	1189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1189
Palama-Liliha	0	0	0	0	0	0	0	2285	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2285
Kalihi-Iwilei	0	0	0	0	0	0	0	1429	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1429
Airport-Pearl Harbor	0	0	0	0	0	0	0	267	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	267
Salt Lake-Āliamanu	0	0	0	0	0	0	0	1272	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1272
Pearl City-'Aiea	0	0	0	0	0	0	0	2452	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2452
'Ewa	0	0	0	0	0	0	0	4421	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4421
Kapolei	0	0	0	0	0	0	0	6438	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6438
Makakilo	0	0	0	0	0	0	0	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	720
Waipahu-Waikele	0	0	0	0	0	0	0	2468	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2468
Waiawa	0	0	0	0	0	0	0	1908	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1908
Mililani	0	0	0	0	0	0	0	1231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1231
Wahiawa	0	0	0	0	0	0	0	546	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	546
East Honolulu	0	0	0	0	0	0	0	664	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	664
Kāne'ohe	0	0	0	0	0	0	0	573	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	573
Kailua	0	0	0	0	0	0	0	1483	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1483
Ko'olau Loa	0	0	0	0	0	0	0	647	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	647
North Shore	0	0	0	0	0	0	0	278	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	278
Wai'anae	0	0	0	0	0	0	0	1015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1015
Makiki-Mānoa	0	0	0	0	0	0	0	2152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2152
UH Mānoa	0	0	0	0	0	0	0	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	125
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	89855	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	89855

Station Volumes by Access Mode

Table 2-66 and Table 2-67 summarize the daily fixed guideway mode of arrival and departure at each of the stations for the First Project Airport Alternative in both production-to-attraction (P/A) and origin-to-destination (O/D) format.¹²

The summaries for mode of access will be based on the O/D formatted tables. The primary mode of access to the stations overall was via bus, indicating the integration with and reliance on bus connections to the fixed guideway line to serve the greater study corridor.

The First Project Airport Alternative shows that approximately 60 percent of the fixed guideway riders daily would access the system by transferring from a feeder bus. Over 11 percent of these bus-to-rail transfers would occur at the Downtown station in the First Project Airport Alternative. Other significant transfer stations in the First Project Alternative would be Ala Moana Center, UH West O'ahu, East Kapolei, Pearl Highlands, and Pearlridge. Almost 30 percent of fixed guideway riders access stations via walking daily. Nearly 11 percent of walking trips access the fixed guideway system at Ala Moana Center. Almost 11 percent of all riders would access the system via automobile (either via kiss-and-ride dropoff, park-and-ride lots, or spillover parking).

Regarding mode of departure, the primary mode used is walking. This is because most of the large employment areas are concentrated along the fixed guideway alignment, while residential housing areas are more evenly spread throughout the island. Nearly 60 percent of fixed guideway riders depart via walking.

Table 2-66. Daily First Project Airport Alternative Station Volumes by Mode of Arrival and Departure (Production to Attraction Format)

Station	Mode of Arrival						Mode of Departure		
	Walk	Bus	Kiss & Ride	Formal Park & Ride	Informal Park & Ride	Total	Walk	Bus	Total
East Kapolei	699	8116	759	2855	0	12429	379	1731	2110
UH West O'ahu	929	7891	510	1354	0	10684	1240	543	1783
Ho'opili	2452	171	462	0	98	3183	401	6	407
West Loch	1055	5873	1006	0	225	8159	1063	1388	2451
Waipahu Transit Center	766	2950	456	0	90	4262	694	1215	1909
Leeward Community College	1928	0	79	0	16	2023	4383	0	4383
Pearl Highlands	2579	9290	1184	6222	0	19275	1150	810	1960
Pearlridge	640	5919	468	0	113	7140	1897	2678	4575
Aloha Stadium (Kamehameha Hwy)	647	1072	218	3223	0	5160	1702	977	2679
Pearl Harbor Naval Base	1812	1260	261	0	59	3392	5249	2256	7505
Honolulu International Airport	1719	1123	86	0	22	2950	9211	484	9695
Lagoon Drive	714	1991	193	0	47	2945	2058	1105	3163
Middle Street Transit Center	351	2172	274	0	65	2862	1303	1461	2764
Kalihi	1928	709	397	0	94	3128	4056	66	4122
Kapālama	1059	0	112	0	19	1190	3271	0	3271
Iwilei	719	1604	1030	0	243	3596	1790	1352	3142
Chinatown	1016	0	16	0	0	1032	2071	0	2071
Downtown	2093	4183	21	0	0	6297	12777	2475	15252
Civic Center	1947	0	66	0	1	2014	5853	4	5857
Kaka'ako	1658	79	36	0	0	1773	4594	271	4865
Ala Moana Center	2278	8292	1772	0	504	12846	8873	23503	32376
Total	28989	62695	9406	13654	1596	116340	74015	42325	116340

¹² To convert the P/A format table to O/D format, the total mode arrival and the total mode of departure trips from the P/A table are summed and divided by two for each station which is then multiplied by the proportion of trips for each mode from the P/A table with the except of the drive access modes (kiss-and-ride and park-and-ride) which are just divided by two from the P/A table.

Table 2-67. Daily First Project Airport Alternative Station Volumes by Mode of Arrival and Departure (Origin to Destination Format)

Station	Mode of Arrival						Mode of Departure		
	Walk	Bus	Kiss & Ride	Formal Park & Ride	Informal Park & Ride	Total	Walk	Bus	Total
East Kapolei	422	5041	380	1428	0	7270	1247	6023	7270
UH West O'ahu	550	4752	255	677	0	6234	4201	2033	6234
Ho'opili	1387	128	231	0	49	1795	1765	30	1795
West Loch	673	4017	503	0	113	5305	2254	3051	5305
Waipahu Transit Center	552	2260	228	0	45	3086	1092	1994	3086
Leeward Community College	2853	303	40	0	8	3203	3203	0	3203
Pearl Highlands	1498	5417	592	3111	0	10618	6189	4429	10618
Pearlridge	491	5076	234	0	57	5858	2437	3420	5858
Aloha Stadium (Kamehameha Hwy)	791	1408	109	1612	0	3920	1979	1940	3920
Pearl Harbor Naval Base	2754	2535	131	0	30	5449	3838	1610	5449
Honolulu International Airport	3363	2906	43	0	11	6323	6011	312	6323
Lagoon Drive	702	2232	97	0	24	3054	2029	1025	3054
Middle Street Transit Center	324	2320	137	0	33	2813	1355	1458	2813
Kalihi	2175	1204	199	0	47	3625	3567	58	3625
Kapālama	1834	332	56	0	10	2231	2231	0	2231
Iwilei	725	2008	515	0	122	3369	1892	1477	3369
Chinatown	1245	299	8	0	0	1552	1552	0	1552
Downtown	2831	7933	11	0	0	10775	9013	1762	10775
Civic Center	3019	883	33	0	1	3936	3933	2	3936
Kaka'ako	2651	650	18	0	0	3319	3133	186	3319
Ala Moana Center	3683	17790	886	0	252	22611	6275	16336	22611
Total	34520	69492	4703	6827	798	116340	69196	47144	116340
	29.7%	59.7%	4.0%	5.9%	0.7%	100.0%	59.5%	40.5%	100.0%

2.4.4 Fixed Guideway Link Volumes

The projected link volumes between the transit stations for the First Project Alternative are listed in Table 2-68.

The heaviest daily volume is found between Lagoon Drive and Middle Street Stations. This link is forecasted to carry 69,214 daily rail riders.

The maximum one-way peak-hour volume is found between Aloha Stadium (Kamehameha Highway) and Pearl Harbor. Volume reaches 8,083 passengers during the peak hour in the peak direction (Koko Head-bound).

The a.m. peak-hour link volumes are graphically displayed in Figure 2-70. This figure shows that eastbound trains will carry the greatest number of passengers in the morning. On the 'Ewa side of the transit corridor, the peak direction (Koko Head-bound) accounts for more than 90 percent of the ridership. Peak direction ridership drops off dramatically after the Downtown stops, and the volume entering the Downtown area is over 90 percent of the volume near the Pearl Highlands Station (Kamehameha Highway/Kuala Street). This is reflective of the high number of riders traveling from 'Ewa and Central O'ahu to the Primary Urban Center, accessing the stations on the Leeward side by either feeder bus or park-and-ride lots.

Table 2-68. First Project Airport Alternative Link Volumes

A Station	B Station	Am Peak Hour			Daily		
		Volume A to B (eastbound)	Volume B to A (westbound)	Two-way Volume	Volume A to B (eastbound)	Volume B to A (westbound)	Two-way Volume
East Kapolei	UH West O'ahu	1,546	321	1,867	12,429	2,110	14,539
UH West O'ahu	Ho'opili	3,131	545	3,675	22,973	3,753	26,726
Ho'opili	West Loch	3,550	518	4,068	25,465	3,469	28,934
West Loch	Waipahu Transit Center	4,450	769	5,218	32,497	4,793	37,290
Waipahu Transit Center	Leeward Community College	4,856	793	5,649	35,556	5,499	41,055
Leeward Community College	Pearl Highlands	4,784	1,002	5,786	35,379	7,682	43,061
Pearl Highlands	Pearlridge	7,346	678	8,024	50,497	5,485	55,982
Pearlridge	Aloha Stadium (Kamehameha Hwy)	7,608	813	8,421	54,082	6,505	60,587
Aloha Stadium (Kamehameha Hwy)	Pearl Harbor Naval Base	8,083	768	8,852	57,425	7,367	64,792
Pearl Harbor Naval Base	Honolulu International Airport	7,836	990	8,826	56,148	10,203	66,351
Honolulu International Airport	Lagoon Drive	7,443	1,121	8,564	52,967	13,767	66,734
Lagoon Drive	Middle Street Transit Center	7,497	1,250	8,746	54,098	15,116	69,214
Middle Street Transit Center	Kalihi	7,418	1,153	8,572	53,631	14,551	68,182
Kalihi	Kapālama	7,280	1,208	8,488	53,230	15,144	68,374
Kapālama	Iwilei	7,047	1,256	8,303	51,648	15,643	67,291
Iwilei	Chinatown	6,877	1,082	7,959	50,810	14,351	65,161
Chinatown	Downtown	6,719	1,074	7,793	49,812	14,392	64,204
Downtown	Civic Center	5,212	1,049	6,261	40,375	13,910	54,285
Civic Center	Kaka'ako	4,627	1,046	5,673	36,234	13,612	49,846
Kaka'ako	Ala Moana Center	4,237	1,004	5,241	32,376	12,846	45,222

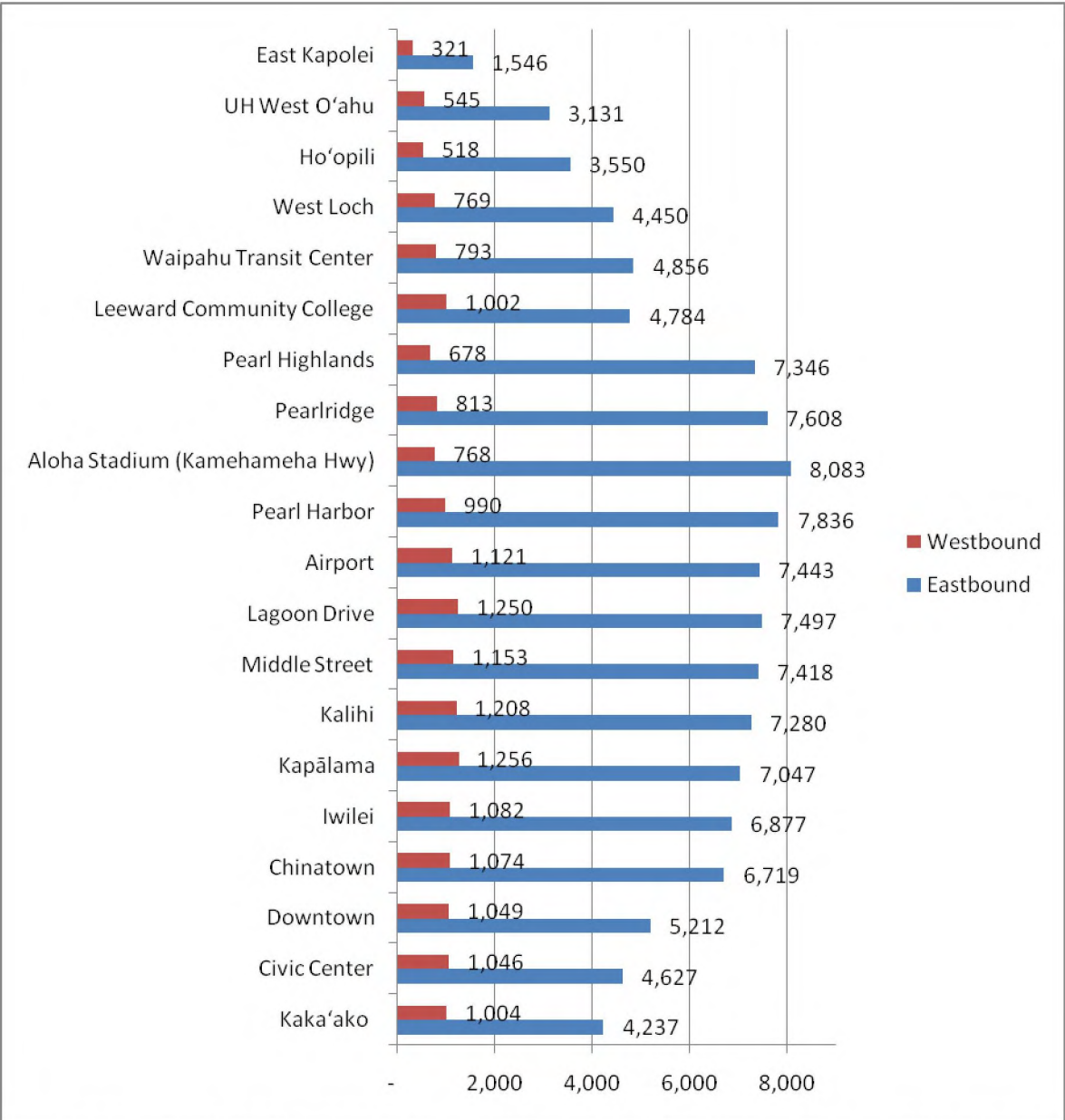


Figure 2-70. First Project Airport Alternative A.M. Peak Hour Link Volumes

2.4.5 Station-to-Station Volumes

Table 2-69 displays the ridership projections for each station-to-station pair for the daily transit trips. This matrix shows that the largest station-to-station interchange volumes are those between the East Kapolei, UH West O'ahu, West Loch, and Pearl Highlands Stations and Downtown and Ala Moana Center.

Table 2-69. First Project Airport Alternative Daily Station to Station Volumes

Station	East Kapolei	UH West O'ahu	Ho'opili	West Loch	Waipahu Transit Center	Leeward Community College	Pearl Highlands	Pearlridge	Aloha Stadium (Kamehameha Hwy)	Pearl Harbor	Airport	Lagoon Drive	Middle Street	Kalihi	Kapalama	Iwilei	Chinatown	Downtown	Civic Center	Kaka'ako	Ala Moana Center	Total
East Kapolei		88	52	273	146	359	277	442	260	548	700	129	244	288	300	349	322	1573	585	379	5115	12429
UH West O'ahu	52		92	334	132	403	274	433	140	567	583	163	248	283	278	337	181	1498	602	398	3686	10684
Ho'opili	308	239		174	58	161	96	155	39	115	136	33	51	72	58	73	33	337	115	74	856	3183
West Loch	129	166	51		180	442	251	339	110	312	422	106	179	175	183	231	100	1058	318	226	3181	8159
Waipahu Transit Center	253	206	39	189		374	102	193	68	186	242	47	68	74	89	75	42	432	134	75	1374	4262
Leeward Community College	56	133	48	143	81		218	160	51	268	181	46	31	63	53	28	17	156	56	37	197	2023
Pearl Highlands	703	461	48	578	272	877		840	239	897	987	257	359	437	412	530	302	2656	905	516	6999	19275
Pearlridge	146	133	25	146	60	374	109		125	694	755	202	227	256	205	194	97	887	304	197	2004	7140
Aloha Stadium (Kamehameha Hwy)	42	39	9	80	50	120	85	360		347	621	174	214	287	195	185	92	849	250	165	996	5160
Pearl Harbor Naval Base	22	30	10	53	31	293	78	163	55		548	89	94	155	113	94	55	405	120	263	721	3392
Honolulu International Airport	24	26	5	38	26	175	44	148	99	371		71	79	169	140	93	81	438	125	110	688	2950
Lagoon Drive	15	15	1	17	11	63	24	91	27	115	118		54	117	106	87	64	432	136	864	588	2945
Middle Street Transit Center	47	36	2	44	20	75	67	195	74	364	277	280		119	81	53	38	344	151	103	492	2862
Kalihi	18	14	1	19	7	67	20	77	70	243	247	190	61		79	127	72	588	235	168	825	3128
Kapālama	4	8	1	12	4	42	15	26	15	90	109	72	22	60		30	19	214	95	82	270	1190
Iwilei	58	36	4	44	25	60	62	133	52	332	433	299	96	264	50		54	503	194	170	727	3596
Chinatown	9	7		9	6	13	6	34	17	84	89	68	39	61	19			65	44	54	408	1032
Downtown	113	75	8	94	49	223	85	225	117	523	605	314	124	346	232	108	58		443	363	2192	6297
Civic Center	7	8	1	12	4	44	13	42	17	101	160	98	57	141	158	139	41	300		89	582	2014
Kaka'ako	10	9	3	11	26	39	12	35	18	87	178	76	52	122	109	119	43	266	83		475	1773
Ala Moana Center	94	54	7	181	721	179	122	484	1086	1261	2304	449	465	633	411	290	360	2251	962	532		12846
Total	2110	1783	407	2451	1909	4383	1960	4575	2679	7505	9695	3163	2764	4122	3271	3142	2071	15252	5857	4865	32376	116340

2.5 Summary Comparison Tables of the Alternatives

This section displays the results of the forecasts in side-by-side tables for comparison.

Table 2-70 shows person trips by mode and alternative. The private automobile mode share for residents decreases from 82 percent for 2005 and 2030 No Build to 81 percent for 2030 TSM and to 80 percent for 2030 First Project. The transit share for residents increases from 6 percent for 2005, 2030 No Build, 2030 TSM to 7 percent for 2030 First Project. The visitor transit mode share remains relatively the same at 5 percent while the private automobile share increases from 32 percent for 2005 to 37 percent for 2030 No Build, 2030 TSM, and 2030 First Project. The bike and walk mode share decreases slightly between 2005 and the 2030 alternatives because of the increase in hotels and resort units in the Ko ‘Olina area which is not close to a lot of visitor attractions, unlike Waikīkī, thus the increase in the private auto and tour bus mode share. Ground access transit trips by air passengers will increase by 2 percent with the First Project compared to the other alternatives.

Table 2-71 shows the summary of transit trips by trip purpose and alternative. The journey-to-work/home-based-work trip purpose had the largest increase in transit trips compared to 2005 for each alternative. The 2030 First Project Alternative had a 46,728 transit trip increase over the 2005, which is nearly three times more than the 2030 No Build increase over 2005, and over two times more than the 2030 TSM increase over 2005. This shows that model is providing an alternative to private automobile mode in the peak periods, which is when most journey-to-work/home-based-work trip purposes occur.

Table 2-72 displays the transit boardings by type of mode (local bus, express bus, ferry, or fixed guideway) and alternative. Overall, there is a 27 percent increase in 2030 No Build transit boardings compared to 2005, a 35 percent increase in 2030 TSM transit boardings compared to 2005, and an 83 percent increase in First Project transit boardings compared to 2005. The First Project shows a significant increase in transit boardings because of the various express bus routes that were turned into local bus feeders to the nearest rail station. This also explains the significant decrease in express bus boardings for the 2030 First Project compared to 2005. The 2030 No Build and TSM express bus boardings were also down because “Current route improvement practices were used where increases in levels of service were provided on restructured routes, but not peak express routes. This is because these are inefficient premium services, but not offered with a corresponding premium passenger fare as is typical with most mainland peak express services. It is more cost effective to increase service frequency on parallel services where they exist.”¹³

Table 2-70. Summary of Daily Person Trips by Mode and Alternative

Mode	2005 Calibration Year		2030 No Build Alternative		2030 TSM Alternative		2030 First Project Airport Alternative	
	Daily Trips	Percent	Daily Trips	Percent	Daily Trips	Percent	Daily Trips	Percent
Resident Trips								
Private automobile	2,247,034	82%	2,815,819	82%	2,808,489	81%	2,767,583	80%
Transit	162,676	6%	205,428	6%	213,036	6%	255,496	7%
Bike/walk	322,484	12%	432,787	13%	432,481	13%	431,706	12%
Total Daily Resident Trips	2,732,194	100%	3,454,034	100%	3,454,006	100%	3,454,785	100%
Visitor Trips								
Private automobile	116,423	32%	160,093	37%	159,786	37%	157,780	37%
Transit	17,592	5%	19,723	5%	20,244	5%	23,511	5%
Taxi	9,312	3%	9,670	2%	9,636	2%	9,520	2%
Tour bus	56,023	15%	77,506	18%	77,319	18%	76,172	18%
Bike/walk	165,104	45%	163,613	38%	163,612	38%	163,599	38%
Total Daily Visitor Trips	364,454	100%	430,605	100%	430,597	100%	430,582	100%
Ground Access Trips by Air passengers								
Private automobile	16,294	27%	27,480	26%	27,442	26%	26,814	26%
Transit	679	1%	1,191	1%	1,259	1%	3,482	3%
Taxi	9,776	16%	16,433	16%	16,415	16%	15,813	15%
Tour bus	11,983	20%	38,012	37%	38,000	37%	37,007	36%
Shuttle bus	21,246	35%	20,758	20%	20,758	20%	20,758	20%
Total trips by air passengers	59,978	100%	103,874	100%	103,874	100%	103,874	100%
Trips by truck	38,616		51,559		51,559		51,559	
Total Daily Trips (All)	3,195,242	100%	4,040,072	100%	4,040,036	100%	4,040,800	100%

¹³ Honolulu High Capacity Transit Corridor Project, “Travel Demand Forecasting Model No Build and Build Alternatives Ridership Comparisons,” Deliverable 6.02.01.02.05, January 30, 2008.

Table 2-71. Summary of Transit Trips by Trip Purpose and Alternative

Purpose	2005 Calibration Year	2030 No Build Alternative	Difference Compared to 2005	2030 TSM Alternative	Difference Compared to 2005	2030 First Project Airport Alternative	Difference Compared to 2005
Journey-to-Work/Home-Based-Work	65,361	81,630	16,269	85442	20,081	112089	46,728
Journey to Work—Home-Based-Other	4,616	6,144	1,528	6389	1,773	7496	2,880
Journey to Work—Work Based	8,206	9,810	1,604	10172	1,966	13075	4,869
Journey to Work—Non Home-Based	5,114	6,543	1,429	6795	1,681	7563	2,449
Non-Home-Based Direct Demand	0	0	0	0	0	12154	12,154
Journey at Work—Work Based	4,293	5,364	1,071	5537	1,244	0	(4,293)
Journey at Work—Non Home-Based	4,248	5,322	1,074	5378	1,130	0	(4,248)
Non-Work Related—Home-Based-College	10,949	14,918	3,969	15506	4,557	20533	9,584
Non-Work Related—Home-Based-School (K-12)	15,458	20,178	4,720	20849	5,391	22684	7,226
Non Work Related Home-Based-Shopping	9,868	12,316	2,448	12614	2,746	13294	3,426
Non-Work Related Home-Based-Other	30,655	38,210	7,555	39221	8,566	41146	10,491
Non Work Related—Non Home-Based	3,908	4,993	1,085	5133	1,225	5462	1,554
Visitor	17,592	19,723	2,131	20244	2,652	23511	5,919
Ground Access Air Passenger	679	1,191	512	1259	580	3482	2,803
Total	180,947	226,342	45,395	234,539	53,592	282,489	101,542

Table 2-72. Summary of Transit Boardings by Type and Alternative

Type	2005 Calibration Year	2030 No Build Alternative	% Difference from 2005	2030 TSM Alternative	% Difference from 2005	2030 First Project Airport Alternative	% Difference from 2005
Local bus	241,387	308,705	28%	330415	37%	335016	39%
Express bus	6,819	5,365	-21%	4844	-29%	2046	-70%
Ferry	0	132	n/a	113	n/a	57	n/a
Fixed guideway	0	0	n/a	0	n/a	116340	n/a
Total	248,206	314,202	27%	335,372	35%	453,459	83%

This chapter discusses the uncertainties of the future rail forecasts. The forecasts for rail shown in the previous chapter are “standard” forecasts. The following sections describe best guess, lower-, and upper-bound estimates for each uncertainty. First, the stepwise build-up of forecasts are presented. Next, several different assumptions in the model are examined to see what effect they have on the rail forecasts. Finally, a conclusion of which uncertainties provide an upside to the Honolulu rail forecasts and which ones provide a downside to the forecasts are shown.

3.1 Stepwise Build-up of Rail Forecasts

Table 3-1 shows the summary of the stepwise build-up of rail forecasts from 2005 to 2030. This table shows eight stepwise runs. The first step is the run using 2005 transit demand and assigning that to the 2030 First Project Airport Alternative transit network. The 2005 on-board survey transit trips were assigned in this case, and this assignment showed that of the 179,161 transit trips, 65,291 got on rail.

The second step uses the estimated 2005 person trips and 2005 highway skims. The transit skims are based on assigning 2005 estimated demand on the 2030 highway network (the highway network in this case uses all of the 2030 ORTP highway projects [O’ahuMPO 2007]¹⁴), which is then skimmed for transit using the 2030 First Project Airport Alternative transit network. The 231,408 total transit trips resulted in 88,424 rail boardings.

The third step is very similar to the second step in that it uses the 2005 person trips and 2005 highway skims. However, the transit skims are based on the **2030 estimated demand**, instead of 2005, on the 2030 highway network. This loaded network is then skimmed for transit using the 2030 First Project Airport Alternative transit network. The 229,261 transit trips resulted in 88,728 rail boardings.

The fourth step is the 2018 First Project Airport Alternative run. The 2018 highway network was based on using the medium-range projects from the 2030 ORTP. The 248,908 transit trips resulted in 88,571 rail boardings.

The fifth step uses the estimated 2018 person trips and 2018 highway skims. The transit skims are based on the 2030 estimated demand on the 2030 highway network. This loaded network is then skimmed for transit using the 2030 First Project Airport Alternative transit network. The 253,625 transit trips resulted in 94,306 rail boardings.

The sixth step uses the estimated 2030 person trips and 2005 highway skims. The transit skims are based on the 2030 estimated demand on the 2030 highway network. This loaded network is then skimmed for transit using the 2030 First Project Airport Alternative transit network. The 280,320 transit trips resulted in 104,341 rail boardings.

The seventh step uses the estimated 2030 person trips. The highway skims are based on assigning the 2030 estimated demand to the **2005 base** highway network. This run was to show the effect of **not** investing \$3-billion on highway improvements (the 2030 ORTP). The 322,669 transit trips resulted in 138,034 rail boardings.

The eighth, and final, step is the 2030 First Project Airport Alternative run. The 280,995 transit trips resulted in 105,969 getting on rail.

Table 3-1. Stepwise Rail-Trip Build Up

Attribute	Step							
	#1	#2	#3	#4	#5	#6	#7	#8
Person trips	--	'05	'05	'18	'18	'30	'30	'30
Highway speeds	--	'05	'05	'18	'18	'05	'30-	'30
Bus speeds	'30	'05+	'30	'18	'30	'30	'30	'30
Transit network	'30	'30	'30	'18	'30	'30	'30	'30
Transit demand	'05a	'30b	'05p	'18	'18p	'30h	'30c	'30
Total Transit Trips	179,161	231,408	229,261	248,908	253,625	280,320	322,669	280,995
Rail trips per day	65,291	88,424	88,728	88,571	94,306	104,341	138,034	105,969

The stepwise build-up reveals that there is a solid existing foundation of rail trips (65,291 rail trips daily if the system were built today [2005]). Also, only 1,628 rail trips were added by modest increase in congestion from 2005 to 2030 (step #8 and step #6). Moreover, the 2018 First Project Alternative run (step #4) shows that only 88,571 rail trips would result, which is relatively similar to stepwise build-up #2 and #3, which is based on 2005 demand. The 2030 First Project Airport Alternative results in 105,969 rail trips, which is nearly 20 percent more than the 2018 forecast. This is based on anticipated land use forecasts for 2030 (which includes the growth of the second city of Kapolei on the ‘Ewa end of the island) . The year 2018 does not yet have the full build-out of the ‘Ewa-Kapolei area.¹⁵ Finally, if the \$3-billion highway improvements in the 2030 ORTP plan were **not** implemented, rail ridership would be 138,034 at the upper end of the range of rail forecasts.

3.2 Uncertainties of the Assumptions in the Model

There are several assumptions in the model that lead to the uncertainties in the rail forecasts. Two came up from the stepwise build-up of rail forecasts—the large highway investment and whether demographics (land use) are a key driver (Kapolei as a second city). The other assumptions came up from the review of the transit service plan. One was the massive restructuring of the bus system to serve the rail stations. Another was whether the rail headways are highly optimistic at 3-minute peak and 6-minute off-peak.

¹⁴ O’ahu Metropolitan Planning Organization. April 2006 (Amendment #1, 2007). *O’ahu Regional Transportation Plan 2030*

¹⁵ See Appendix A for comparison of the 2005, 2018, and 2030 land use data.

3.2.1 Large Highway Investment

The 2030 highway network includes all the highway projects in the 2030 O’ahu Regional Transportation Plan (ORTP), which amount to \$3 billion. Stepwise build-up #6 and the 2030 First Project Airport Alternative run (stepwise build-up #8) show that there is only a 1,628 increase in rail trips with the 2030 highway skims as compared to the 2005 highway skims when using the same person trip tables (2030) and same transit skims (2030). If no highway improvements are made in 2030, the rail forecast would be 138,034 as shown in stepwise build-up #7, but this is not a *reasonable* highway plan.

Two more reasonable highway improvement plans were tested. One plan was to use the medium range plan in the 2030 ORTP. These are the projects that would be built between now and 2015. Another plan was to use only selected projects in the 2030 ORTP. The entire 2030 ORTP, except the Wai’anae Second Access Road and Central Mauka Road projects, was used for this test.

Table 3-2 shows that the upper-bound estimate would be the 2030 First Project Alternative run but only use the medium-range projects for the highway side. The best guess estimate would use the 2030 ORTP minus the Wai’anae Second Access Road and Central Mauka Road projects. The lower-bound estimate would use the fully adopted regional plan.

Table 3-2. Transit Summary Statistics for Differing Highway Plans

Highway Plan	Rail Trips	Total Transit Trips
2030 ORTP medium-range projects	124,886	302,823
2030 ORTP minus Wai’anae Second Access and Central Mauka Road projects	113,316	287,509
2030 ORTP fully adopted	105,969	280,995

3.2.2 Demographics—Second City

The adopted land demographics used in the model show large gains in households and jobs in the ‘Ewa and Kapolei areas for the year 2030. There is a policy to grow Kapolei as a “second city” away from the Downtown Honolulu area.¹⁶ Some of Hawai‘i’s largest companies, as well as state and city government agencies, have set up significant subcenters in Kapolei, but so far, the rapid population growth in the area has far out-paced local job creation, and a majority of adults living in and near Kapolei are employed in Honolulu, causing heavy congestion on the main traffic artery—Interstate H-1.¹⁷

Two other demographic datasets were used to test what affect the large increase in employment for 2030 in the ‘Ewa-Kapolei area has. One demographic pattern was to use 2030 grand total for employment but use the 2018 demographic distribution. This distribution pattern shows a significant *decrease* in employment in the ‘Ewa-Kapolei

area. (See Appendix Table B-1.) The second demographic pattern was reflect an even higher increase in employment in the ‘Ewa-Kapolei area than the adopted forecasts for 2030 data show. (See Appendix Table B-2.) This dataset actually comes from the new data series that is being used for the 2035 ORTP update.

Table 3-3 shows that the upper-bound estimate would be the land use plan that does not build out the “second city” with large increases in employment. The best guess estimate would use the current 2030 ORTP long-range demographic/land use plan. The lower-bound would be the newest data available, which increases the employment in the ‘Ewa and Kapolei areas more than the current 2030 ORTP data.

Table 3-3. Transit Summary Statistics for Differing Demographic/Land Use Plans

Demographic/Land Use Plan	Rail Trips	Total Transit Trips
2018 distribution pattern scaled to 2030 employment totals	109,099	287,731
Increased job growth in ‘Ewa–Kapolei data	101,403	276,651
Current 2030 demographic/land use data	105,969	280,995

3.2.3 Massive Bus System Restructuring

Honolulu’s geographic constraint where the transportation corridor is basically a west-to-east movement has most of the bus routes in the study corridor. Figure 3-1 shows the study corridor boundary and the First Project Airport Alternative alignment. Most of the bus routes pass through this study corridor (south or “makai” of the study corridor boundary). The rail alignment affects a large majority of routes. Many of these bus routes in the study corridor had to be truncated at rail stations since they provided duplicative service with the rail. Because many routes were truncated, an analysis of transit riders facing forced transfers and who had a longer travel time in the rail alternative was examined.

¹⁶ http://en.wikipedia.org/wiki/Kapolei,_Hawaii
¹⁷ http://en.wikipedia.org/wiki/Kapolei,_Hawaii

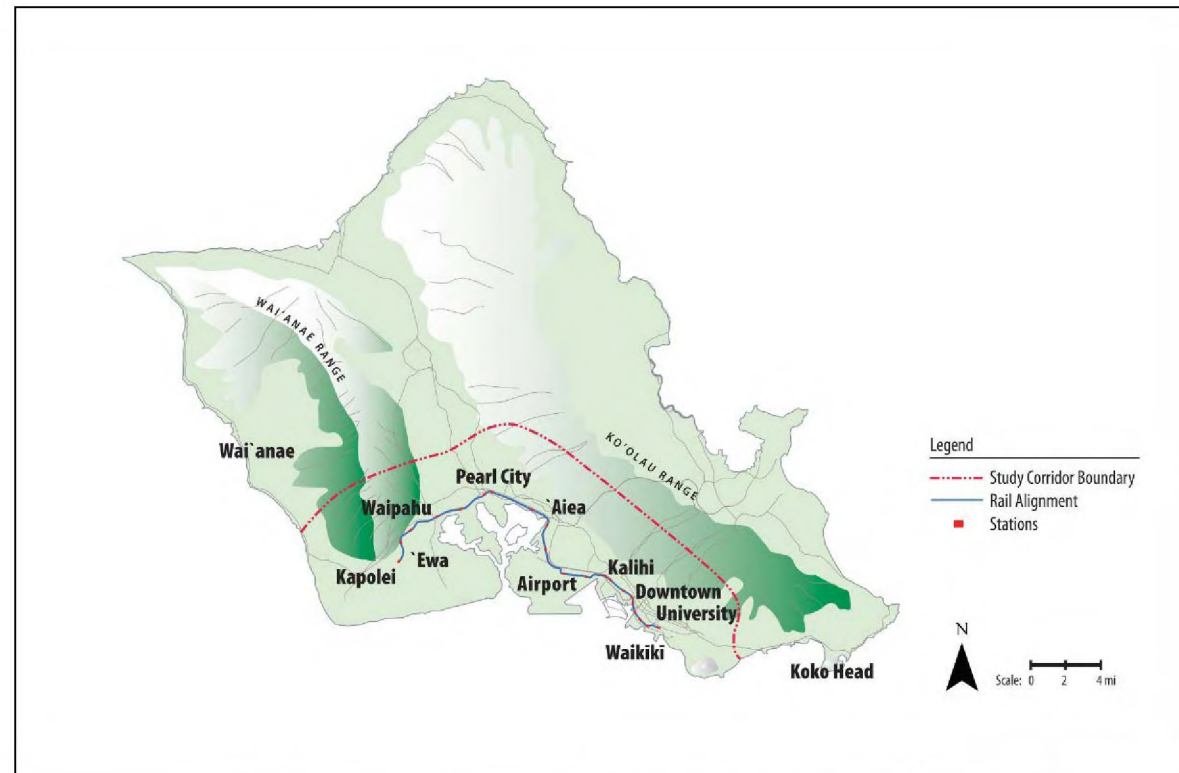


Figure 3-1. Honolulu High-Capacity Transit Corridor Project Vicinity

For this analysis, only the journey-to-work/home-based-work trips were examined, since these trips typically occur during the peaks and are the trip purpose with the largest number of transit riders. Two conditions were used to flag the trips for this analysis. One was to flag the zone pairs where the First Project Airport Alternative had more transfers than the TSM Alternative. The second was that the weighted time for that zone pair was longer for the First Project Airport Alternative.

This analysis showed that there were 3,802 TSM journey-to-work/home-based-work trips forced to transfer with a longer First Project Airport Alternative weighted transit travel time. This amounts to 5 percent of the total journey-to-work/home-based-work TSM transit trips. Table 3-4 shows the summary of the transit boarding assignment of these 3,802 transit trips to the TSM network (only routes with greater than 50 boardings are shown). 60 percent of these 3,802 forced transfer trips have destinations in the following six districts—Downtown, Kaka’ako, Airport, Salt Lake, Kapolei, and Waipahu (Table 3-6). Also, the routes shown in Table 3-4 pass through these six districts and are either truncated near each end of the rail line or parallel the rail alignment. For example, Route A is truncated at Kalihi Transit Center in the Airport Alternative while Route A in the TSM continues west to UH West O’ahu. In the Airport Alternative, transit trips from UH Mānoa to UH West O’ahu take Route A and transfer to rail to continue the trip, whereas in the TSM, these trips have a one-seat ride on Route A. In any event, the small portion of trips (5 percent) argue that replacing some of these Airport Alternative supporting bus routes with the same service characteristics like the TSM means increasing the operating costs of the transit system for a small benefit.

Two test runs were done to see what effect restoring some of the TSM routes to the Airport Alternative would have on rail ridership. One test was to restore the top four routes with the largest number of boardings from Table 3-4 into the Airport Alternative bus network. The second was to restore the same four routes plus Routes 80A, 11, and 13. Table 3-5 shows the results of those two runs. The upper-bound estimate would be the standard forecast with the Airport Alternative bus plan (105,969 rail trips). The best-guess estimate would be to use the Airport Alternative bus plan and restore Routes 3, 9, 40, and 50 from the TSM Alternative (100,785 rail trips). The lower-bound estimate would be to use the Airport Alternative bus plan and restore Routes 3, 9, 40, 50, 80A, 11, and 13 (100,104 rail trips).

Table 3-4. Number of Boardings by Routes for Journey-to-Work/Home-Based-Work Transit Trips for 2030 TSM that Would Be Forced to Transfer to Rail and Have a Longer Transit Time in Airport Alternative

Route	Number of Boardings	Notes
3	649	TSM: Between Kāhala Mall and Salt Lake Airport: Between Kāhala Mall and Alapa'i Transit Center
40	455	TSM: Between Wai'anāe and Ala Moana Center Airport: Route broken up into sections (Wai'anāe to Leokū and Leokū to Ala Moana Center)
9	336	TSM: Between St. Louis and Pearl Harbor Airport: Between St. Louis and Ala Moana Center
50	300	TSM: Between Mililani and Kapolei Airport: Between Mililani and Waipahu
11	157	TSM: Between Pearl Ridge Center and Alapa'i Transit Center Airport: Deleted
51	154	TSM: Between Wahiawa and Ala Moana Center Airport: Between Wahiawa and Pearl Ridge Center
42	150	TSM: Between 'Ewa Beach and Waikīkī Airport: Between 'Ewa Beach and Waipahu Transit Center
13	131	TSM: Between Liliha and Kāhala Mall Airport: Between Liliha and Downtown
A	127	TSM: Between UH West O'ahu and UH Mānoa Airport: Between Kalihi Transit Center and UH Mānoa
80	123	TSM: Route 80 and 80A exist Airport: Route 80A deleted
D	112	TSM: Between Wahiawa and UH Mānoa Airport: Between Wahiawa and Pearl Highlands Center
41F	79	No difference
E	67	TSM: Between 'Ewa Beach and Waikīkī Airport: Deleted
54	58	TSM: Between Pearl Ridge Center and Ala Moana Center Airport: Between Pearl Ridge Center and Alapa'i Transit Center
20	55	TSM: Between Pearl Ridge Center and Waikīkī Airport: Deleted
19	50	TSM: Between Hickam–Pearl Harbor and Waikīkī Airport: Between Airport and Waikīkī

Table 3-5. Summary Transit Statistics for Differing Bus Service Plans

Bus Plan	Rail Trips	Total Transit Trips
Airport Alternative bus plan with Routes 3, 9, 40, and 50 from the TSM reinstated	100,785	282,207
Airport Alternative bus plan with Routes 3, 9, 40, 50, plus Routes 80A, 11, and 13 from the TSM reinstated	100,104	283,046
Airport Alternative bus plan	105,969	280,995

Table 3-6. District-to-District Journey-to-Work/Home-Based-Work Transit Trips for 2030 TSM that Would Be Forced to Transfer to Rail and Have a Longer Transit Time in the Airport Alternative

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Millilani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	0	3	11	19	17	3	9	31	28	18	0	1	0	5	0	7	2	2	2	2	0	0	1	0	0	0	161
Kaka'ako	9	0	3	4	19	5	41	0	18	18	1	0	0	1	0	0	1	1	4	3	0	1	1	0	0	0	130
Mō'ili'ili	53	10	3	4	13	40	14	2	36	13	0	0	0	1	9	8	7	7	6	7	0	0	1	0	0	0	234
Waikīkī	78	74	1	0	11	17	7	1	2	2	1	1	0	5	2	2	2	6	0	0	0	0	0	0	0	0	212
Kaimukī-Wai'alae	264	58	22	1	10	15	44	1	20	9	2	0	0	1	2	3	1	1	1	5	1	0	1	4	4	0	470
Palama-Liliha	2	2	22	7	6	4	2	5	21	5	0	0	0	4	3	3	6	0	0	0	0	0	2	0	1	0	95
Kalihi-Iwilei	0	14	2	0	12	3	17	38	24	23	3	5	0	5	2	1	1	0	0	0	0	0	2	1	1	0	154
Airport-Pearl Harbor	19	0	0	0	0	1	17	53	1	11	0	0	1	13	5	3	0	0	0	0	0	0	0	0	0	0	124
Salt Lake-Āliamanu	200	19	3	0	7	27	29	25	24	20	0	0	0	5	9	4	2	2	2	2	1	0	1	4	0	0	386
Pearl City-'Aiea	50	3	0	0	0	6	13	45	28	16	20	91	3	24	5	5	1	1	1	1	0	0	6	1	0	0	320
'Ewa	41	6	6	28	2	0	4	0	0	2	8	32	1	39	4	14	13	2	2	1	2	0	2	1	0	0	210
Kapolei	0	0	0	0	0	0	0	0	0	0	15	63	3	19	0	3	0	0	0	0	0	0	3	0	0	0	106
Makakilo	0	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
Waipahu-Waikele	23	0	0	0	0	0	1	0	0	14	49	194	9	70	17	8	4	0	0	0	0	0	8	1	0	0	398
Waiawa	24	0	3	0	1	1	2	0	0	3	25	84	2	43	0	0	0	0	0	0	0	0	9	0	0	0	197
Millilani	0	0	1	0	0	0	2	0	0	2	7	17	0	3	0	1	0	0	0	0	0	1	3	0	0	0	37
Wahiawa	14	1	1	0	0	0	1	0	1	0	0	1	0	0	2	6	4	0	0	0	0	0	0	0	0	0	31
East Honolulu	6	2	1	0	1	0	3	24	11	10	1	6	0	3	3	1	0	7	1	0	0	0	0	1	45	0	126
Kāne'ohe	21	32	19	3	15	3	0	2	5	4	2	0	0	1	1	6	6	0	0	0	0	0	0	1	0	0	121
Kailua	2	2	24	1	13	0	0	9	5	5	1	0	0	5	1	2	7	2	0	0	0	0	0	0	3	0	82
Ko'olau Loa	0	14	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
North Shore	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2	0	0	0	0	0	3	0	0	0	0	7
Wai'anae	0	0	0	0	0	0	6	0	1	0	1	11	1	0	0	0	1	0	0	0	0	0	0	0	0	0	21
Makiki-Mānoa	21	5	3	6	12	16	3	0	16	3	1	0	0	1	1	8	2	2	0	2	0	0	0	5	1	0	108
UH Mānoa	13	5	0	0	0	2	1	2	2	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	28
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	840	250	131	73	140	143	216	238	244	179	139	529	20	249	66	87	60	33	19	23	4	5	40	19	55	0	3802

3.2.4 Rail Headways

The current headways used in the 2030 Project forecast is 3 minutes for the peak period and 6 minutes for the off-peak period. There may be a phased implementation of these headways consistent with the growth in passenger loadings. The phased approach could lead to longer headways and a decrease in operations’ cost.

A test of making the headways longer was done to see how the model responds. Table 3-7 shows that the lower-bound estimate would be the one with longer headways (5-minute peak and 10-minute off-peak). Since the headways cannot be shortened, the best guess and upper-bound estimates would be the plan with 3-minute peak and 6-minute off-peak headways.

Table 3-7. Transit Summary Statistics for Differing Headways on Rail

Demographic/Land Use Plan	Rail Trips	Total Transit Trips
5-minute peak and 10-minute off-peak	97,169	276,528
3-minute peak and 6-minute off-peak	105,969	280,995

Table 3-8. Current (2005) Formal Park-and-Ride Lot Statistics¹⁸

Current Lot	Number of Cars	Number of Spaces	Bus Routes that serve lot
Hawai'i Kai	?	134	1, 80, 80A, 82, 95
Mililani Mauka	30	176	52, 88A, 98
Royal Kunia	12	149	97, 434
Wahiawa	40	50	52, 62, 83, 83A, 98
Haleiwa	?	20	52, 83A, 76

Because of the absence of current formal park-and-ride users, and the fact that a fixed guideway park-and-ride lot will have more security and will attract more users than an unsecured park-and-ride lot with unattractive transit service, drive access to guideway constants was tested for the O’ahuMPO base model. Survey data from Portland, Oregon, and San Diego, California, were gathered to calculate mode of access shares to rail by trip purpose and auto-ownership. A set of constants for park-and-ride and kiss-and-ride to rail by trip purpose and auto ownership was calibrated in the mode choice model using the Portland and San Diego survey data separately.

Table 3-9 shows the results of the original calibrated model (“Honolulu Originally Calibrated”), which shows hardly any formal park-and-ride to rail (0.5 percent), to the Portland and San Diego calibrated mode of access shares. As can be seen, the Portland calibrated shares show the highest formal park-and-ride to rail percentage (24.8 percent) compared to San Diego, which shows 12.9 percent.

The lower-bound estimate would be the “Honolulu originally calibrated” which resulted in 100,294 rail trips. The upper-bound estimate would be to use the Portland drive access shares, which resulted in 115,109 rail trips. And the best-guess estimate would be to use the San Diego drive access shares, which resulted in 105,969 rail trips.

Table 3-9. Mode of Access Shares to Rail with Varying Drive Access Constants

Mode of Access	Honolulu Originally Calibrated	Portland Calibrated	San Diego Calibrated (Standard Forecast)
Walk	18.5%	15.2%	17.1%
Bus	64.6%	52.7%	59.6%
Kiss-and-ride	14.0%	6.4%	8.9%
Formal park-and-ride	0.5%	24.8%	12.9%
Informal park-and-ride	2.5%	0.8%	1.5%
Total Rail Trips	100,294	115,109	105,969

¹⁸ The number of cars used at each of the park-and-ride sites was based on information Weslin Inc. provided. These are not official numbers but statistics gathered when they observed the park-and-ride lots for analysis they have done for O’ahu Transit Services and the City and County of Honolulu’s Department of Transportation Services Department.

3.3.2 Bus Access to Rail Trips

There was some concern that there were too many bus transfers to rail trips in the model. Table 3-9 shows that the standard forecast had nearly 60 percent of the rail trips accessed by bus. The bus operations plan was designed with a lot of community circulators feeding the rail system. Also, many express buses that exist today and in the future No Build scenario were turned into local feeder buses to the rail system. The thought was that some of those bus access trips could be turned into drive access trips if an extra car was available and a nearby rail park-and-ride lot was accessible, since drive access to a rail station is more attractive to a transit rider than bus access to a rail station. So, an analysis of the bus access trips from two or more auto households was examined further.

The 2030 First Project Airport Alternative standard forecast shows that 30 percent of bus access to rail trips comes from one-auto households while 42 percent of bus access to rail trips comes from two-plus auto households. Table 3-10 shows that the highest number of bus access trips from two-plus car households was mostly seen on the ‘Ewa end of the line (East Kapolei through Pearl Highlands), as these are the stations that have a lot of circulators tying into the rail line.

Figure 3-2 shows the number of bus access to rail trip productions from two-plus car households. There is a significant number of bus access trips (dark red zones) from the Wai‘anae, Makakilo, Kapolei, and ‘Ewa areas that could use the East Kapolei and UH West O‘ahu park-and-ride lots for drive access. Central O‘ahu and Pearl City also have a significant number of bus access to rail trips that could easily drive and park at the Pearl Highlands park-and-ride lot. Finally, there are some ‘Aiea zones that have significant bus access to rail trips that could utilize the Aloha Stadium park-and-ride lot.

This analysis shows that some of the bus access to rail trips could be turned into drive access to rail trips. However, this would not decrease or increase the overall rail ridership. This analysis simply moved trips within the access modes.

Table 3-10. Daily Mode of Access for 2030 First Project Alternative Two-Plus Car Household Fixed Guideway Trips

Station	Person Trips In						Person Trips Out		
	Walk	Bus	Kiss-and-Ride	Formal Park-and-Ride	Informal Park-and-Ride	Total	Walk	Bus	Total
East Kapolei	209	2224	570	2324	0	5327	82	473	555
UH West O‘ahu	215	3265	330	1064	0	4874	552	192	744
Ho‘opili	980	71	348	0	75	1474	100	2	102
West Loch	280	2558	788	0	174	3800	273	449	722
Waipahu Transit Center	245	1399	324	0	82	2050	160	151	311
Leeward Community College	125	0	39	0	14	178	2121	0	2121
Pearl Highlands	825	4239	848	5032	0	10944	284	184	468
Pearlridge	112	2090	339	0	99	2640	486	907	1393
Aloha Stadium	118	349	146	2352	0	2965	137	297	434
Pearl Harbor Naval Base	85	275	172	0	46	578	1138	936	2074
Honolulu International Airport	1	331	58	0	16	406	1881	173	2054
Lagoon Drive	3	363	116	0	34	516	452	377	829
Middle Street Transit Center	33	587	172	0	46	838	324	563	887
Kalihi	326	224	276	0	68	894	1227	23	1250
Kapālama	56	0	66	0	18	140	1210	0	1210
Iwilei	44	368	594	0	148	1154	631	570	1201
Chinatown	74	0	7	0	0	81	827	0	827
Downtown	44	1370	12	0	0	1426	6108	944	7052
Civic Center	186	0	36	0	0	222	2404	5	2409
Kaka‘ako	137	0	29	0	0	166	1394	50	1444
Ala Moana Center	48	663	1064	0	305	2080	2616	12050	14666
Total	4146	20376	6334	10772	1125	42753	24407	18346	42753

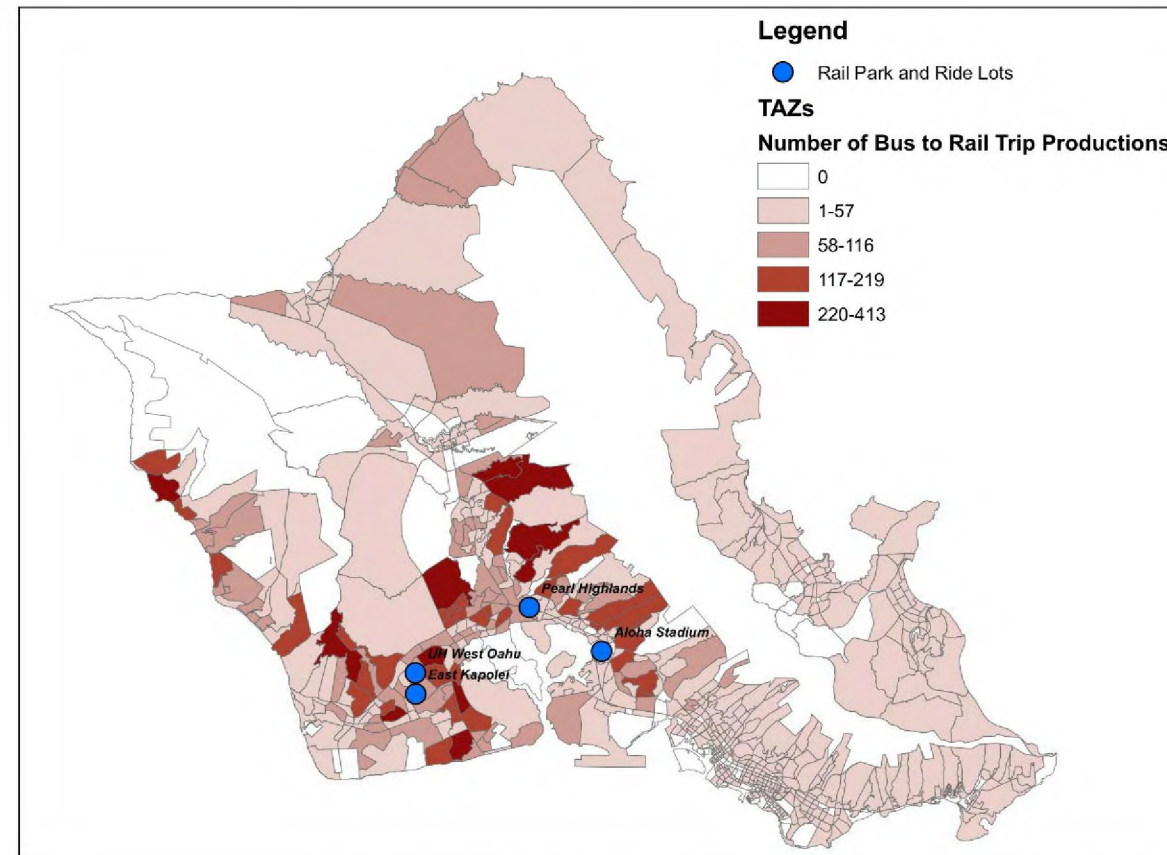


Figure 3-2. Number of Bus-to-Rail Trip Productions from Two-Plus Car Households

3.3.3 Multi-Transfer Trips

Because of the massive restructuring of the bus system to serve the rail system, an analysis of two-plus transfer trips was done to see whether the transit system in the Airport Alternative made people worse off. Only the journey-to-work/home-based-work transit trips were used for this analysis, since these trips typically occur during the peaks and was the trip purpose with the largest number of fixed guideway transit riders. Three conditions were used to flag the trips for this analysis. First, travelers chose rail but had to transfer two or more times. Second, there was an express bus path (second option) available. Third, the weighted time for the express bus path (second option) was better than the rail option.

Table 3-11 shows the 35,290 district-to-district journey-to-work/home-based-work walk to fixed guideway transit trips. The top three production districts are 'Ewa, Wai'anae, and Waipahu-Waikele. The top three attraction districts are Downtown, Airport-Pearl Harbor, and Kalihi-Iwilei.

Table 3-12 shows that of the 35,290 walk to fixed guideway trips, 13,263 had to transfer two or more times. The top three production districts in this table are still 'Ewa,

Wai'anae, and Waipahu-Waikele. However, the top three attraction districts are now Waikiki, Airport-Pearl Harbor, and UH Mānoa.

Table 3-13 shows that of the 13,263 walk to fixed guideway trips that had to transfer two or more times, only 4,384 had an express bus (second option) available. Figure 3-3 shows the frequency distribution of journey-to-work/home-based-work walk to fixed guideway transit trips where a second option was available for travel besides fixed guideway and was also forced to transfer two or more times. This figure shows that almost all of the trips in this category had a better fixed guideway travel time (negative, since this means less travel time compared to express bus).

Of these 4,384 trips, only 13 had a better second option (express bus path). Figure 3-4 shows the frequency distribution of journey-to-work/home-based-work walk to fixed guideway transit trips where the weighted travel time of the second option was better (positive). Most of these trips have a less than 5-minute weighted advantage over rail. Furthermore, this is a very small percentage and means that overall, even though riders were forced to transfer two or more times, they were better off in terms of weighted transit travel time on the rail system. This test showed that there would be no upper-bound or lower-bound estimates, since the multi-transfer trips did not result in a significant amount of riders being worse off with the supporting bus system in the Airport Alternative.

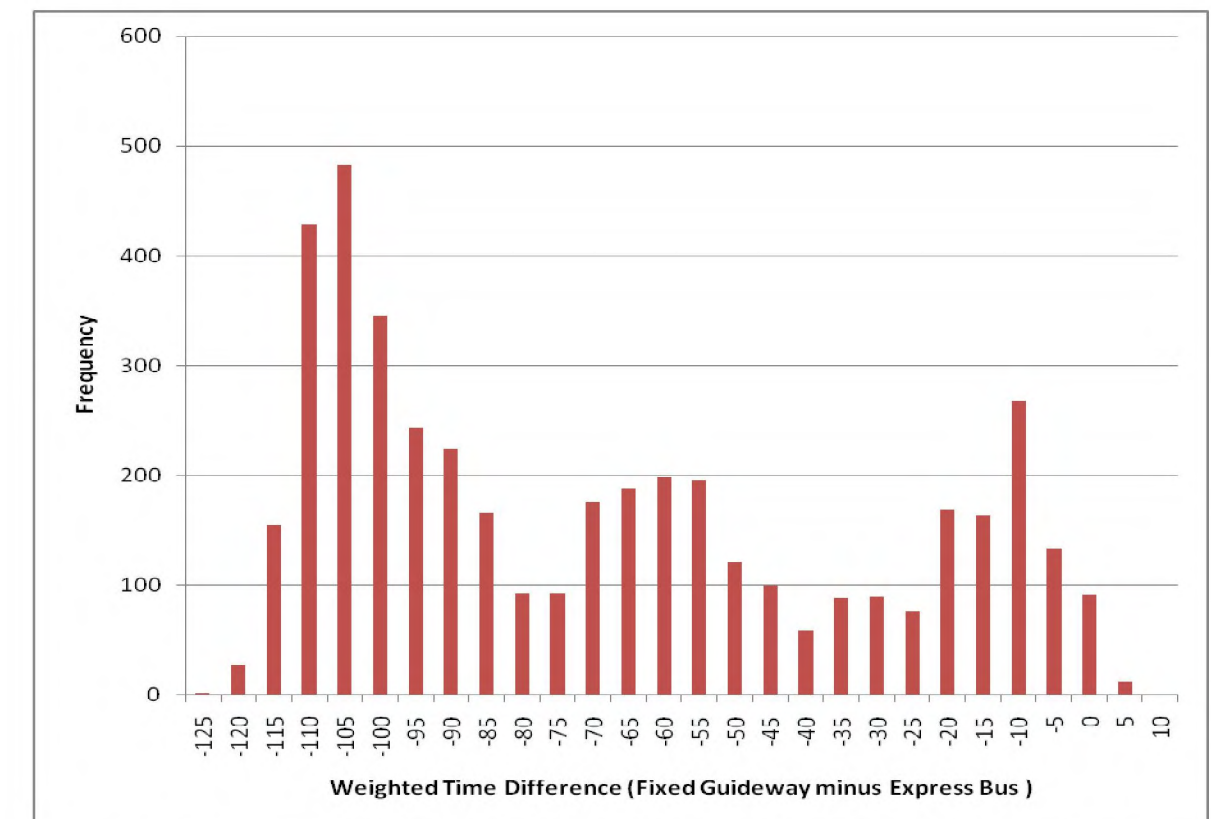


Figure 3-3. Frequency of Journey-to-Work/Home-Based-Work Walk to Fixed Guideway Transit Trips with Second Option Available and Forced to Transfer Two-plus Times

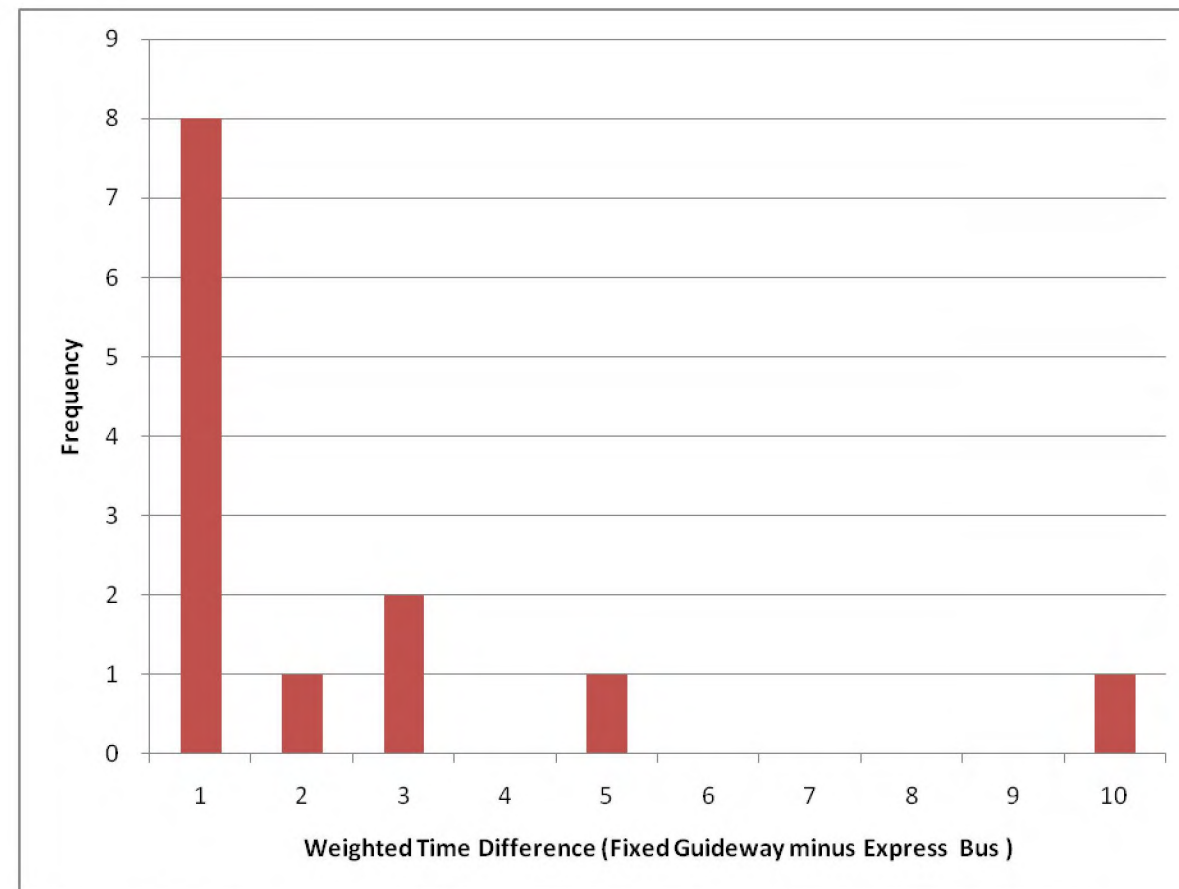


Figure 3-4. Frequency of Journey-to-Work/Home-Based-Work Walk to Fixed Guideway Transit Trips Where Second Option Had Better Weighted Time and Forced to Transfer Two-plus Times

Table 3-11. District-to-District Journey-to-Work/Home-Based-Work Walk to Fixed Guideway Transit Trips

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'i	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waiekele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	19	34	80	83	19	7	101	230	92	47	4	14	1	20	4	6	4	0	1	1	0	0	1	5	11	48	832
Kaka'ako	162	16	69	87	28	69	266	227	123	71	5	16	0	16	5	4	2	0	8	14	1	0	3	11	15	19	1237
Mō'ili'i	382	141	0	0	0	20	236	258	127	81	6	24	1	17	9	5	7	0	6	5	0	0	0	0	0	1	1326
Waikīkī	70	30	0	0	0	4	70	117	43	36	1	12	0	11	4	5	1	0	0	0	0	0	0	0	0	0	404
Kaimukī-Wai'alae	195	71	0	0	0	7	106	135	55	44	5	11	0	9	1	2	2	0	1	2	1	0	0	0	0	0	647
Palama-Liliha	145	138	67	107	13	4	143	359	89	100	7	22	1	25	9	9	5	1	7	4	0	1	2	12	18	54	1342
Kalihi-Iwilei	191	155	68	77	15	26	49	250	84	67	4	19	0	16	3	2	1	1	9	5	0	0	0	4	9	38	1093
Airport-Pearl Harbor	74	20	12	12	4	7	35	40	16	22	0	7	1	38	20	4	1	0	3	3	0	0	0	1	3	4	327
Salt Lake-Āliamanu	468	145	96	82	29	55	161	151	12	146	7	31	3	48	27	12	11	4	18	16	1	1	1	14	22	26	1587
Pearl City-'Aiea	546	175	124	128	37	76	301	578	269	55	36	151	11	127	41	5	1	6	23	29	1	0	4	21	57	35	2837
'Ewa	777	289	254	897	124	104	276	345	167	223	43	232	14	116	42	63	52	19	26	25	10	5	8	31	253	64	4459
Kapolei	342	133	112	401	54	50	121	182	83	136	37	0	0	121	32	44	36	4	17	11	2	4	0	18	111	28	2079
Makakilo	264	97	86	300	40	40	91	121	59	75	29	0	0	61	15	23	19	6	10	8	2	2	0	11	91	21	1471
Waipahu-Waiekele	488	115	248	780	44	46	135	220	103	212	44	200	13	60	54	31	21	8	8	15	4	3	1	12	100	81	3046
Waiawa	365	92	179	538	38	34	106	181	90	113	49	210	13	116	0	0	0	6	12	14	2	0	3	11	69	65	2306
Mililani	465	165	134	176	63	55	167	257	119	131	58	185	13	79	0	0	0	10	14	16	1	0	5	20	133	39	2305
Wahiawa	229	84	68	91	28	30	85	135	63	77	30	109	6	53	0	0	1	7	6	8	0	0	7	11	71	20	1219
East Honolulu	0	3	0	0	0	0	12	93	22	19	3	12	1	12	1	2	1	0	0	0	0	0	0	0	0	0	181
Kāne'ohe	0	96	62	65	9	1	57	223	68	67	7	20	0	21	8	11	2	0	0	0	0	0	2	4	29	26	778
Kailua	0	105	64	87	12	2	85	178	56	57	9	18	2	15	8	9	3	0	0	0	0	0	2	3	30	38	783
Ko'olau Loa	0	13	8	18	3	0	2	31	4	8	1	5	0	4	0	0	0	0	0	0	0	0	0	0	14	7	118
North Shore	261	98	78	108	32	24	80	101	52	36	10	37	1	26	0	0	0	4	2	8	0	0	0	12	86	22	1078
Wai'anae	695	244	211	286	93	86	223	453	179	125	23	0	0	109	42	42	43	16	23	19	3	1	0	24	221	56	3217
Makiki-Mānoa	71	51	2	0	0	3	122	163	71	43	2	10	0	12	7	2	2	0	0	0	0	0	0	0	0	3	564
UH Mānoa	9	12	0	0	0	0	3	16	5	3	1	1	0	2	0	0	1	0	0	0	0	0	0	0	0	0	53
Ala Moana Center	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	6218	2522	2022	4323	685	751	3033	5044	2051	1994	421	1346	81	1134	332	281	216	92	194	203	28	17	39	225	1343	695	35290

Table 3-12. District-to-District Journey-to-Work/Home-Based-Work Walk to Fixed Guideway Transit Trips and Transferred Two or More Times

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	0	0	1	12	3	0	0	9	6	5	0	5	2	3	0	3	1	0	0	0	0	0	1	1	1	0	53
Kaka'ako	0	0	0	0	3	4	0	13	12	12	0	7	0	0	1	1	1	0	0	3	1	0	1	0	0	0	59
Mō'ili'ili	0	0	0	0	0	10	2	59	60	40	3	17	4	12	8	5	6	0	2	6	0	0	0	0	0	0	234
Waikīkī	1	0	0	0	0	4	0	35	16	19	1	10	2	7	1	5	1	0	0	0	0	0	0	0	0	0	102
Kaimukī-Wai'alae	16	1	0	0	0	7	19	49	36	29	5	18	0	6	1	2	2	0	1	2	1	0	0	0	0	0	195
Palama-Liliha	0	5	11	107	13	4	1	79	37	53	5	17	4	12	5	9	5	1	6	5	0	1	2	12	18	2	414
Kalihi-Iwilei	0	0	0	16	4	0	0	18	9	12	1	8	2	4	0	1	0	1	1	0	0	0	0	0	1	0	78
Airport-Pearl Harbor	0	2	1	12	3	6	0	1	12	8	0	7	0	16	12	3	1	0	2	2	0	0	1	1	4	0	94
Salt Lake-Āliamanu	0	11	29	82	29	52	1	67	9	68	2	27	3	27	19	12	11	4	15	20	0	1	2	13	22	0	526
Pearl City-'Aiea	0	8	36	108	32	59	3	130	110	10	12	105	16	33	10	4	1	6	19	25	1	0	5	17	51	0	801
'Ewa	25	27	71	672	93	71	9	98	77	73	2	9	1	27	23	43	34	15	16	19	7	4	1	20	185	3	1625
Kapolei	28	21	33	368	56	44	9	64	48	66	21	27	0	66	24	44	42	9	11	12	3	5	0	16	103	3	1123
Makakilo	0	9	23	267	36	31	0	40	31	26	10	0	0	32	13	20	16	5	9	6	0	2	0	10	79	0	665
Waipahu-Waikele	0	6	61	599	38	35	1	51	35	66	10	109	17	1	25	18	14	7	7	10	4	1	2	11	74	0	1202
Waiawa	0	3	31	307	22	21	0	37	30	38	14	111	17	16	0	0	0	5	8	10	0	0	3	7	38	0	718
Mililani	38	22	52	176	63	50	17	99	77	82	37	152	28	44	0	0	0	10	14	16	0	0	8	20	133	5	1143
Wahiawa	62	29	32	91	28	26	23	61	45	53	20	99	15	33	0	0	1	7	3	9	0	0	9	11	71	5	733
East Honolulu	0	0	0	0	0	0	2	62	18	18	3	22	2	11	1	2	1	0	0	0	0	0	0	0	0	0	142
Kāne'ohe	0	6	15	65	9	1	2	115	47	50	6	40	1	16	5	10	1	0	0	0	0	0	1	4	33	2	429
Kailua	0	12	18	89	13	2	9	61	26	34	6	16	3	8	5	10	3	0	0	0	0	0	2	2	29	4	352
Ko'olau Loa	64	25	18	37	11	5	17	34	14	10	2	13	1	4	0	0	0	0	0	0	0	0	0	4	30	6	295
North Shore	43	22	31	85	25	21	13	39	25	22	10	28	5	17	0	0	1	4	1	6	0	0	0	6	67	4	475
Wai'anae	123	57	90	282	91	82	33	197	113	73	8	16	0	70	34	42	42	16	20	21	4	0	0	22	219	9	1664
Makiki-Mānoa	0	0	0	0	0	3	2	41	33	20	2	7	1	8	3	2	2	0	0	0	0	0	0	0	0	0	124
UH Mānoa	2	1	0	0	0	0	0	6	3	2	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	17
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	402	267	553	3375	572	538	163	1465	929	889	181	871	124	473	190	236	187	90	135	172	21	14	38	177	1158	43	13263

Table 3-13. District-to-District Journey-to-Work/Home-Based-Work Walk to Fixed Guideway Transit Trips, Transferred Two or More Times, and Had a Walk to Express Bus Path Available

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'ili	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	0	0	0	6	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Kaka'ako	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	7
Mō'ili'ili	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Waikīkī	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Kaimukī-Wai'alae	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Palama-Liliha	0	0	0	18	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	2	0	26
Kalihi-Iwilei	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Airport-Pearl Harbor	0	0	0	3	0	0	0	1	1	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0	1	0	11
Salt Lake-Āliamanu	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Pearl City-'Aiea	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	1	1	0	0	0	0	0	20
'Ewa	25	27	67	672	89	52	8	9	17	1	1	9	0	0	0	0	0	13	15	16	5	0	0	18	176	3	1223
Kapolei	28	21	32	368	53	29	9	3	4	1	1	18	0	0	1	0	0	7	9	11	0	0	0	16	98	3	712
Makakilo	0	9	23	267	35	16	0	0	0	0	0	0	0	0	0	0	0	4	6	5	0	0	0	10	79	0	454
Waipahu-Waikele	0	2	3	228	0	4	0	0	0	0	0	16	0	0	0	0	0	0	1	0	2	0	0	1	0	0	257
Waiawa	0	0	0	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0	1	0	0	0	0	0	0	0	27
Mililani	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	0	0	4	0	0	0	0	0	0	0	25
Wahiawa	0	0	0	1	0	0	0	0	0	0	0	14	0	0	0	0	0	0	1	0	0	0	0	0	0	0	16
East Honolulu	0	0	0	0	0	0	0	52	14	11	3	20	1	9	1	1	1	0	0	0	0	0	0	0	0	0	113
Kāne'ohe	0	6	7	45	4	1	2	93	34	36	3	35	1	12	4	6	0	0	0	0	0	0	0	3	33	2	327
Kailua	0	8	6	57	5	0	5	17	7	6	0	6	0	0	1	5	0	0	0	0	0	0	0	1	29	4	157
Ko'olau Loa	64	25	18	37	11	5	11	34	12	5	1	8	0	2	0	0	0	0	0	0	0	0	0	4	30	6	273
North Shore	34	8	8	16	4	7	1	0	2	0	0	2	0	0	0	0	0	0	1	1	0	0	0	1	9	0	94
Wai'anae	83	36	55	237	37	36	3	0	0	0	0	0	0	0	0	0	0	2	6	9	0	0	0	12	96	3	615
Makiki-Mānoa	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
UH Mānoa	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	236	142	219	1955	238	150	39	210	91	60	13	221	2	23	7	12	1	26	44	47	8	0	0	66	553	21	4384

Table 3-14. District-to-District Journey-to-Work/Home-Based-Work Walk to Fixed Guideway Transit Trips, Transferred Two or More Times, and Express Bus Path is Better than Rail Path

Production District	Attraction District																										Total
	Downtown	Kaka'ako	Mō'ili'i	Waikīkī	Kaimukī-Wai'alae	Palama-Liliha	Kalihi-Iwilei	Airport-Pearl Harbor	Salt Lake-Āliamanu	Pearl City-'Aiea	'Ewa	Kapolei	Makakilo	Waipahu-Waikele	Waiawa	Mililani	Wahiawa	East Honolulu	Kāne'ohe	Kailua	Ko'olau Loa	North Shore	Wai'anae	Makiki-Mānoa	UH Mānoa	Ala Moana	
Downtown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kaka'ako	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mō'ili'i	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waikīkī	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kaimukī-Wai'alae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Palama-Liliha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kalihi-Iwilei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Airport-Pearl Harbor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salt Lake-Āliamanu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pearl City-'Aiea	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
'Ewa	4	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Kapolei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Makakilo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waipahu-Waikele	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waiawa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mililani	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wahiawa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
East Honolulu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kāne'ohe	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Kailua	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Ko'olau Loa	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
North Shore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wai'anae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Makiki-Mānoa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UH Mānoa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ala Moana Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	3	0	0	1	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13

3.3.4 Rail/Guideway Effects¹⁹

The O’ahuMPO base model treats rail the same as local bus in the standard forecasts. But, rail substantially improves unmeasured attributes, like visibility, reliability, amenities at stops/on trains, and the schedule flexibility for riders. These factors or attributes are not captured by the standard modeling process. To account for these attributes and to determine how these might affect rail ridership, two different sets of assumptions were tested. One was to give an additional factor equivalent to a 14.5-minute savings of in-vehicle time for riders taking rail only and incorporate a 5.5-minute savings of in-vehicle time for riders taking the feeder buses to rail. The second assumption gave only a 7-minute savings of in-vehicle time for riders taking rail only and a 3-minute savings of in-vehicle time for riders taking feeder buses to rail.

Table 3-15 shows that the upper bound estimate for rail would result if the 14.5 and 5.5 minutes of in-vehicle time savings was used. The best-guess estimate is the 7 and 3 minutes of in-vehicle time savings assumption, and the lower-bound is the standard forecast with no savings for the unmeasured guideway effects.

Table 3-15. Summary Transit Statistics for Varying Unmeasured Guideway Effects

Unmeasured Guideway Effects	Rail Trips	Total Transit Trips
K=14.5/5.5 minutes + C(ivtrail) = 0.85 x C(ivtother)	125,427	296,193
K=7/3 minutes + C(ivtrail) = 0.95 x C(ivtother)	114,989	287,819
Standard forecast	105,969	280,995

3.3.5 Special Markets (Circulation Trips)

There are special market rail trips (circulation trips) that are generated when a rail system becomes available to the transit user because of the rail’s visibility, reliability, and ease of use. A non-home-based-direct demand model was developed in 1989 for estimating these special circulation trips for the Washington Metro Area Transit Authority (WMATA). This model estimates the number of non-home-based-trip ends at each rail station. The model was updated and re-estimated using 2002 data before being applied for Honolulu.²⁰

The standard forecast run shown previously which resulted in 105,969 rail trips produced 12,154 circulation rail trips, which is just under 15 percent of the total rail ridership. The 12,154 circulation rail trips replace the journey-at-work purpose rail trips. Out of the 105,969 rail trips, 1,783 were from the journey-at-work purpose. This leaves

104,186 (105,969 minus 1,783) rail trips that the 12,154 will be added to. This makes a total of 116,340 total rail trips with the circulation total.

3.4 Summary of Uncertainty Specifications

Table 3-16 shows the summary of uncertainty specifications for the lower-bound, best-estimate, and upper-bound forecasts.

Table 3-16. Specifications for the Lower-bound, Best-estimate, and Upper-bound Forecasts

Sources of Uncertainty	Lower Bound	Best Estimate	Upper Bound
Western end employment	Increased job growth in 'Ewa	Current plan	2018 distribution pattern
	101,403	105,969	109,099
2030 highway investments	2030 highway investment plan	2030 plan minus two projects	Medium range (2015) projects
	105,969	113,316	124,886
Bus restructuring revisions	Revise top 7 routes	Revise top 4 routes	Current 2030 bus plan
	100,104	100,785	105,969
Fixed guideway service levels	5 minute peak/10 minute off-peak	3 minute peak/6 minute off-peak	3 minute peak/6 minute off-peak
	97,169	105,969	105,969
Drive access behavior	No redistribution of access modes	San Diego	Portland
	100,294	105,969	115,109
Unmeasured guideway effects	Local bus	50% of effect	100% of effect
	105,969	114,989	125,427
Bus access to rail	No change	No change	No change
Multi-transfer trips	No change	No change	No change

These uncertainties provide insights into what assumptions of the model affect the forecasts. Demographics have shown to be key drivers in rail ridership (i.e., the western end of the island employment growth). The large 2030 ORTP highway investment plan showed little added congestion from the existing conditions and showed less than 2,000 rail riders were added by this worse congestion—i.e. “Standard Forecast” minus stepwise build-up #6 (2030 demand and transit skims with 2005 highway skims). The absence of current formal drive access behavior provided the lower-bound estimate as other areas have shown that there are more formal park-and-ride trips at fixed guideway stations, since these areas provide more security and are more visible and reliable than Honolulu’s current open park-and-ride lots, which are generally only serviced with peak express buses not operating throughout the day. The fixed guideway service levels also had a significant impact on rail ridership as lengthening the headways resulted in the lower-bound estimate. The “standard forecast” is likely an under-estimate as it is difficult to determine the confidence levels of the current land use plan (western end

¹⁹ FTA does not yet approve using rail/guideway non-included attribute credits/discounts in estimating rail ridership. They only approve these credits and discounts only in the calculation of user benefits. See Final Guidance on New Starts, Federal Register, Vol. 72, No. 106, Monday, June 4, 2007 page 30911.
²⁰ See the Model Development, Calibration, and Validation Report for the Honolulu High Capacity Transit Project, September 2009.

employment) and the current 2030 ORTP highway investment plan, as these two uncertainties have a measurable impact on rail ridership.

3.5 Best-Guess Forecast

A best-guess forecast was run using the current 2030 demographics and employment data, the 2030 ORTP highway investment plan (minus the Waiʻanae Second Access Road and Central Mauka Road projects), the current 2030 bus plan plus four routes added back in from the TSM alternative, the current headways for the fixed guideway, and the San Diego shares for drive access. This run resulted in 110,728 fixed guideway boardings.

References

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RTD 2009c City and County of Honolulu Department of Transportation Services, Rapid Transit Division. October 2009. *Honolulu high-capacity transit corridor project final environmental impact statement/Section 4(f) evaluation.*

Appendix A—Final EIS Land Use Comparison

Table A-1. Population Comparison

Transit District	Year		
	2005	2018	2030
1. Downtown	12,730	18,309	22,933
2. Kaka'ako	7,674	23,181	33,745
3. Mō'ili'ili–Ala Moana	40,301	44,721	48,817
4. Waikīkī	20,902	22,002	22,869
5. Kaimukī–Wai'alaē	55,302	56,497	57,774
6. Palama–Liliha	65,174	66,539	67,859
7. Kalihi–Iwilei	25,721	29,744	33,986
8. Airport–Pearl Harbor	11,587	12,614	12,473
9. Salt Lake–Āliamanu	54,465	54,069	53,784
10. Pearl City–'Aiea	78,909	78,940	79,119
11. 'Ewa	51,587	67,965	91,215
12. Kapolei	16,718	37,264	56,261
13. Makakilo	15,710	23,366	29,550
14. Waipahu–Waikēle	56,628	59,922	61,277
15. Waiawa	12,195	25,926	45,552
16. Mililani	53,685	54,307	53,602
17. Wahiawā	36,510	35,802	35,186
18. East Honolulu	49,748	52,979	51,304
19. Kāne'ohe	54,809	55,260	53,529
20. Kailua	63,954	65,040	63,147
21. Ko'olau Loa	14,697	15,655	16,516
22. North Shore	18,395	19,820	20,750
23. Wai'anae	44,656	48,100	52,285
24. Makiki–Mānoa	44,980	46,315	47,692
25. UH Mānoa	5,873	5,981	6,094
26. Ala Moana Center	3	3	3
Total	912,913	1,020,321	1,117,322

Table A-2. Employment Comparison

Transit District	Year		
	2005	2018	2030
1. Downtown	64,684	68,130	70,945
2. Kaka'ako	24,780	31,676	34,128
3. Mō'ili'ili–Ala Moana	36,665	39,707	42,967
4. Waikīkī	46,456	47,741	49,432
5. Kaimukī–Wai'alaē	21,219	22,485	24,382
6. Palama–Liliha	18,153	19,319	21,160
7. Kalihi–Iwilei	42,278	45,317	47,995
8. Airport–Pearl Harbor	39,729	40,268	40,871
9. Salt Lake–Āliamanu	34,044	34,128	35,033
10. Pearl City–'Aiea	24,910	28,179	30,968
11. 'Ewa	8,195	11,374	15,516
12. Kapolei	17,349	39,201	54,420
13. Makakilo	1,998	2,500	3,434
14. Waipahu–Waikēle	15,552	17,116	20,375
15. Waiawa	4,294	7,345	10,356
16. Mililani	17,972	18,406	19,789
17. Wahiawā	18,020	18,361	19,511
18. East Honolulu	6,931	6,646	6,795
19. Kāne'ohe	12,121	12,408	12,726
20. Kailua	24,019	24,487	24,772
21. Ko'olau Loa	5,883	6,420	6,945
22. North Shore	3,909	4,229	4,355
23. Wai'anae	7,253	6,972	7,126
24. Makiki–Mānoa	7,668	8,269	9,197
25. UH Mānoa	12,889	13,124	13,503
26. Ala Moana Center	5,880	5,936	6,010
Total	522,851	579,743	632,711

Appendix B—Alternative Demographics/Land Use Data

Table B-1. Comparison of 2030 Final EIS Employment with 2030 Total but 2018 Distribution Employment

Transit District	Final EIS 2030 Employment	Scaled 2018 Distribution to 2030 Total Employment	Difference Scaled 2018 Data minus Final EIS Data
1. Downtown	70,945	75097	4,152
2. Kaka'ako	34,128	34783	655
3. Mō'ili'ili–Ala Moana	42,967	43867	900
4. Waikīkī	49,432	52588	3,156
5. Kaimukī–Wai'alaē	24,382	24762	380
6. Palama–Liliha	21,160	21343	183
7. Kalihi–Iwilei	47,995	49723	1,728
8. Airport–Pearl Harbor	40,871	43471	2,600
9. Salt Lake–Āliamanu	35,033	36827	1,794
10. Pearl City–'Aiea	30,968	30923	(45)
11. 'Ewa	15,516	12186	(3,330)
12. Kapolei	54,420	41545	(12,875)
13. Makakilo	3,434	2654	(780)
14. Waipahu–Waikēle	20,375	18693	(1,682)
15. Waiawa	10,356	7810	(2,546)
16. Mililani	19,789	19625	(164)
17. Wahiawā	19,511	19540	29
18. East Honolulu	6,795	7377	582
19. Kāne'ohe	12,726	13757	1,031
20. Kailua	24,772	26324	1,552
21. Ko'olau Loa	6,945	7070	125
22. North Shore	4,355	4650	295
23. Wai'anae	7,126	7703	577
24. Makiki–Mānoa	9,197	9112	(85)
25. UH Mānoa	13,503	14638	1,135
26. Ala Moana Center	6,010	6640	630
Total	632,711	632,708	(3)

Table B-2. Comparison of Final EIS Land Use with 2035 ORTP Update Land Use

Transit District	Final EIS Land Use		2035 ORTP Update Land Use		Difference ORTP Update minus Final EIS	
	2030 Population	2030 Employment	2030 Population	2030 Employment	Population	Employment
1. Downtown	22,933	70,945	21784	71955	(1,149)	1,010
2. Kaka'ako	33,745	34,128	31651	35083	(2,094)	955
3. Mō'ili'ili–Ala Moana	48,817	42,967	47483	43830	(1,334)	863
4. Waikīkī	22,869	49,432	22463	48649	(406)	(783)
5. Kaimukī–Wai'alaē	57,774	24,382	56731	25795	(1,043)	1,413
6. Palama–Liliha	67,859	21,160	66578	22353	(1,281)	1,193
7. Kalihi–Iwilei	33,986	47,995	32530	49821	(1,456)	1,826
8. Airport–Pearl Harbor	12,473	40,871	11817	41836	(656)	965
9. Salt Lake–Āliamanu	53,784	35,033	53093	36554	(691)	1,521
10. Pearl City–'Aiea	79,119	30,968	78147	32519	(972)	1,551
11. 'Ewa	91,215	15,516	85861	24258	(5,354)	8,742
12. Kapolei	56,261	54,420	51366	62478	(4,895)	8,058
13. Makakilo	29,550	3,434	27038	3418	(2,512)	(16)
14. Waipahu–Waikēle	61,277	20,375	60314	21800	(963)	1,425
15. Waiawa	45,552	10,356	41972	13690	(3,580)	3,334
16. Mililani	53,602	19,789	52875	21981	(727)	2,192
17. Wahiawā	35,186	19,511	34773	21171	(413)	1,660
18. East Honolulu	51,304	6,795	49976	6568	(1,328)	(227)
19. Kāne'ohe	53,529	12,726	52981	12597	(548)	(129)
20. Kailua	63,147	24,772	62551	25720	(596)	948
21. Ko'olau Loa	16,516	6,945	15986	7003	(530)	58
22. North Shore	20,750	4,355	20230	3953	(520)	(402)
23. Wai'anae	52,285	7,126	50003	6801	(2,282)	(325)
24. Makiki–Mānoa	47,692	9,197	46778	9734	(914)	537
25. UH Mānoa	6,094	13,503	6023	13718	(71)	215
26. Ala Moana Center	3	6,010	3	6025	0	15
Total	1,117,322	632,711	1,081,007	669,310	(36,315)	36,599